JANUARY, 1956 • 20c

Better Farming Methods

For County Agents, Vo-Ag Teachers, Soil Conservationists, and Extension Specialists

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PROFESSIONAL MAGAZINE for Leaders who TRAIN and ADVISE Farmers

Agricultural Chemicals—

What's Ahead for 1956

A Review for Ag Leaders
covering
Fertilizer • Insecticides • Fungicides
Defoliants • Weed Control
and featuring an
Educational Insert on Chemical Safety

PURINA VISITS

Bobby Dale Parsons

POULTRYMAN OF TOMORROW

Bobby Dale Parsons is an old hand—at 15—with broilers and turkeys. All his life he has worked with them under the guidance of his father, Dale Parsons, Route 5, Springdale, Arkansas. And he plans to continue working with feathered meat-makers when he starts farming on his own.

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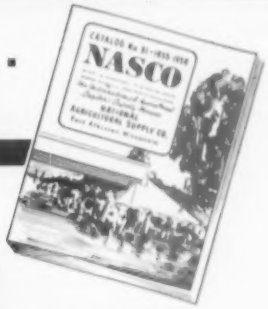

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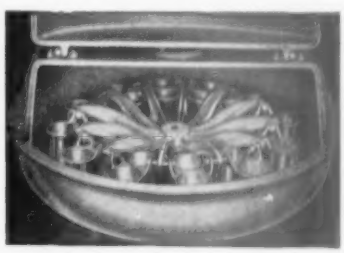

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National Agricultural Supply Company

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Coming Events

January 3-February 24—Eight Week Dairy Production Course, Purdue University.

January 4-6—Charter Meeting, Weed Society of America, Hotel New Yorker, New York City.

January 4-6—National Turkey Federation Convention, Conrad Hilton Hotel, Chicago.

January 5-6—Second Annual Mississippi Insect Control Conference, Mississippi State College.

January 8-11—59th Annual Convention, American National Cattlemen's Association, New Orleans, La.

January 9-13—Annual Meeting, Washington State College Agricultural Extension Service Conference, Pullman.

January 10-11—North Carolina Pesticide School, North Carolina State College, Raleigh.

January 16-18—Ninth Annual Meeting, Southern Weed Conference, Hotel Jung, New Orleans, La.

February 1-3—PENB Annual Planning Conference, LaSalle Hotel, Chicago.

February 6-9—10th National Convention, The National Association of Soil Conservation Districts, Hotel Statler, Boston, Mass.

February 12-19 — Longhorn Recreation Laboratory, Kerrville, Tex.

March 1 — Eleventh Distillers Feed Conference, Sheraton-Gibson Hotel, Cincinnati, O.

April 23-27—Third American Film Assembly, Morrison Hotel, Chicago.

June 11-15—Florida State FFA Convention, Peabody Auditorium, Daytona Beach, Fla.

June 17-20—Annual Meeting, American Society of Agricultural Engineers, Hotel Roanoke, Roanoke, Va.

July 9-13 — Florida State Vo-Ag Teachers' Conference, Princess Issena Hotel, Daytona Beach, Fla.

Better Farming Methods

Ag Chemicals Issue

Professional Magazine for Leaders Who TRAIN and ADVISE Farmers. Written exclusively for Vo-Ag Teachers, County Agents, Extension Specialists, Soil Conservationists, Farm and Home Administrators, and Bank Farm Service Agents.

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Newsletter Contest—Have You Entered It?

Have you entered Better Farming Methods' Circular Newsletter Contest? If not, do so today. You can find full information on prizes, contest rules, and entry blank on page 82 of the November issue, or on page 42 of the December issue of Better Farming Methods.

Send in your entry today!

The ad index will be found on page 53

Herbert L. Schaller, Editor

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MEMBER NATIONAL AUDIO-VISUAL ASSOCIATION

PUBLISHED MONTHLY ON THE 1st OF THE MONTH BY WATT PUBLISHING COMPANY, MOUNT MORRIS, ILLINOIS

NFP

BPA

They helped make 1955 a big telephone year

Rural America will reap the lasting benefit of more and better telephone service through the work of thousands of telephone men and women during the past 12 months.

1 IN CALIFORNIA, R. T. Clemo, right, wire chief of Glenn County, spent much time with farmers and ranchers to fit telephone company construction plans to their needs. As a result of his surveys, $135,000 was spent improving service and adding telephones for hundreds of customers in his area.

2 IN OHIO, Paul Dougherty, right, is manager at Washington Court House. Much of his time was spent checking new rural construction and talking with farmers at Grange and community gatherings to learn of their telephone needs. Rural service in his area now includes over 2000 telephones.

3 IN ILLINOIS, Bernice Lordan, chief operator at Harvard, has watched telephones multiply each year. She has seen their service value grow for the 500 rural customers she helps serve. And she has seen this growth from both ends of the line – as telephone operator for 30 years and as co-operator of a good dairy farm.

The folks here are typical of the many Bell System men and women working in rural areas across the nation. Behind them are Bell Telephone Laboratories' scientists developing ideas to help serve rural America better. Together they're putting new things to use—a new wire, for example, that's easier to install, and a new cable many times more resistant to moisture and lightning. Last year this Bell System team brought telephones to about 300,000 more rural customers, and improved service to millions.

BELL TELEPHONE SYSTEM

Antibiotics Help Preserve Meat

Better quality meat soon may be available to American consumers as the result of the discovery that meat spoilage can be greatly retarded if the antibiotic terramycin is injected into the animal shortly before slaughter. This was reported before the annual meeting of the American Meat Institute by Chas. Pfizer & Company, Inc., for the pharmaceutical company whose scientists developed the new process. Meat treated with minute quantities of terramycin can be aged at higher temperatures than is now possible. This permits a more nearly normal tenderizing action by the natural enzymes in the meat itself. It was also reported that spoilage of poultry parts dipped in a terramycin solution was retarded three times as long as untreated poultry parts.

Use Non-Legume Roughages for Cattle

Recent experimental work at Kansas State College has demonstrated that non-legume roughages can be utilized efficiently by beef cattle if the ration is supplemented properly. Wheat straw, oat straw, prairie hay, corn stover, sorghum stover, corn cobs, and others need to be supplemented with vitamin A, protein, calcium, and phosphorus. Energy or sources of carbohydrates as grains need to be included in the ration to increase the rate of gain.

Irradiated Sawdust—Will It Make Feed?

Digestible sawdust as an energy food for cows is one of the newest peacetime possibilities of atomic energy. Oregon State College agricultural and forestry scientists reason that bombardment of the cellulose with atomic rays might split the carbohydrate into smaller units that could be more readily made soluble by stomach or rumen fluids. Sawdust sealed in tin cans and in polyethylene bags was subjected to irradiation with the result that rumen fluids were able to change into soluble form one-fourth to one-third of the carbohydrates. Further tests on a large scale are needed to determine how feasible this practice might be.

Corn Silage Cuts Sow Feed Costs

Feed costs for sows during gestation can be reduced as much as 20 percent if a corn silage ration is fed, report Purdue University animal husbandmen. In addition to reduced feed costs, sows fed corn silage farrowed up to two more pigs per litter during two recent experiments at the Purdue University Livestock experimental farm. The sows fed silage weaned an average of 1.3 more pigs per litter at eight weeks than other sows. From these two experiments, the Purdue specialists concluded that normal healthy litters can be produced when sows are fed a ration of good quality corn silage supplemented with proteins, vitamins, and minerals.

Apply Insecticides to the Soil

Interest is developing in application of insecticides to the soil in the fall, according to research entomologists at Iowa State College. They say fall application should give good control the following year if the material is properly applied and worked into the soil by double-disking or plowing. While application of soil insecticides to control rootworm and other pests is a growing practice, fall application may be slow in becoming accepted because more insecticide is needed, fall plowing is not always practical, and more research is needed before general recommendations can be made.

Turkeys Fatten Faster Under Lights

Preliminary trials at Pennsylvania State University indicate that maintenance of a 12-hour light day by means of artificial lights, when needed, helps fattening turkeys to gain faster. Male and female turkeys lighted from 13 to 28 weeks of age averaged 1.4 and 0.7 pound heavier, respectively, than comparable males and females reared under natural environment. There was no apparent difference in market quality of the carcasses when both groups were dressed.

Sod Cover Does Not Hurt Orchards

The long-held belief that clean cultivation is better for orchards than a sod cover was disproved by Michigan State University horticulturists. They found the sod mulch cover actually retarded tree growth and fruit production in Bartlett pear orchards for the first 12 years. But from then on the sod cover plot produced more fruit than did a clean cultivated plot, and had virtually no water loss. At the end of 25 years the fertilized sod mulch had produced 1,136 more bushels of fruit. And the sodded trees had 80 percent more fruit measuring above two and one-half inches during a six-year grading test. The horticulturists found about the same results for apple orchards.

Make Use of Sawdust

From Purdue University comes a summarization of the use of sawdust in agriculture. Sawdust or wood chips can be put to work as soil builders, livestock bedding, or mulch. It can be used as a soil builder, either by direct application with a manure spreader, or by composting it first. Apply sawdust in the fall and add extra nitrogen at the rate of 30 pounds of actual "N" per ton of sawdust the following spring. Between one and three tons of sawdust per acre are recommended. Sawdust can also serve as an excellent animal bedding. Purdue studies have shown that when used as a bedding in dairy barns, sawdust keeps cows clean, produces no dust, and remains in place. Manure produced with sawdust bedding is somewhat low in nitrogen.

HAPPY WINNERS—The six 1954 college scholarship winners are pictured at the 33rd National 4-H Club Congress with A. E. Forster, president of Hercules Powder Company. Left to right, Barbara Ristow, Indiana; Edwin Jones, Arizona; Mr. Forster; Brenda Adams, Oklahoma; Louise Ottaway, Kansas; David Anderson, Rhode Island; Judith Gates, Oregon.

SIX COLLEGE SCHOLARSHIPS AWAIT 1956 ENTOMOLOGY PROGRAM WINNERS

Once again in 1956, as in previous years, the National 4-H Entomology Awards Program will offer six college scholarships to national winners.

Sponsored by Hercules Powder Company, producer of toxaphene for agricultural insecticides, the Entomology Program also includes awards for winners on the county and state level.

The complete list of awards is as follows:

County: Gold-filled medals.

State: Trip to the '56 National 4-H Congress for each state winner.

National: 6 college scholarships of $300 each.

The competition is open to all eligible 4-H boys and girls. Complete information on the program is available from your County Extension Agent, or 4-H leader.

COUNTY AWARD — This handsome 14-carat gold-filled medal will be awarded county winners in the 1956 Entomology Program.

Agricultural Chemicals Section
Naval Stores Department
HERCULES POWDER COMPANY
905 King Street, Wilmington 99, Delaware

NXSS-21

S P O T L I G H T I N G

Communication Methods

to help ag leaders get farm people to accept new ideas

By Gerald McKay
Audio-Visual Specialist
University of Minnesota

Plan a Communications Budget

When you plan a demonstration or any organized unit of work where mass information media can be used, don't forget information costs in the budget.

The extent of mass communications you use may determine whether you reach 50 people or 50,000 people with the demonstration results. But it does cost some money to reach the extra 49,950.

It would be easy if we could suggest 10 or 20 percent of the total for these costs; but the problem isn't that simple. Sometimes you might need 50 percent of the total budget for information media, at other times very little.

It would be wise to plan finances for the following:

- Color slides
- 16mm film for group teaching and perhaps television
- preparation of charts
- magnetic tape for radio and classroom use
- circular letters
- roadside signs
- mimeographed tour material
- photographs to illustrate newspaper and magazine articles.

In many cases these expenses may be contributed by sponsors or other interested persons.

The important thing is to include the items in the original budget.

Teaching with a Song

This technique has long been used in special situations. It has possibilities with 4-H and FFA groups.

Verses composed to fit common tunes can describe recommended practices and facts taught in class or meetings. For example, a series of soil conservation practices could be written for the tune "Old MacDonald Had a Farm." The melody is easy to sing and well known. Such a song could be used effectively at FFA banquets and 4-H club meetings.

Other tunes like "Home on the Range," songs of the armed services, and the common college tunes are easy to sing and lend themselves readily to other words.

People Believe What They See

Most agricultural workers use demonstrations to influence farm people. By general agreement a demonstration is called either a *method* or a *result* demonstration.

When you show folks how to do a certain thing by doing it yourself, you are conducting a method demonstration. Showing people the value of an improved practice is a result demonstration.

For example, showing how to dehorn a calf would be in the first category, but showing the results of using fertilizer on corn would be in the second.

Either kind can be very effective. The subject should be one of immediate interest to those in the community.

More Effective Flannelgraphs

In developing a flannelgraph story, color will often add effect not otherwise possible. By using paper of several colors, the relation of parts to the whole can be shown more easily.

Crop rotations, room arrangement, bar graphs, and other concepts are effective in color.

One such paper is sold under the brand of "Color Aid Paper." Size is 18x24 inches and price approximately 20 cents a sheet. If not available from local art stores, it can be purchased from the Geo. F. Muth Co., 1332 New York Ave., N.W., Washington, D.C.

In using this paper, as with other flannelgraph pieces, strips of sandpaper should be fastened to the back with rubber cement.

Contest Increases Interest

In some states, annual contests are conducted to encourage more effective production and use of mass communication media.

These are handled both by vo-ag teachers' associations and state extension information offices.

Generally the contest is in connection with the annual conference of the group. In some cases, substantial prizes are given.

One such contest includes classes for press, radio (tape recordings), visual aids, and circular letters. Some provide classes for both men and women.

Agricultural organizations and commercial concerns interested in farm business are usually willing to donate prizes.—*End*

A bale of good alfalfa hay is the attention getting visual here. Each arrow is one step in the process of getting the establishment of a good stand of alfalfa. The final arrow hits the target indicating dollars. Rodney Briggs, agronomist, University of Minnesota, used this communication medium in a number of farmer-dealer meetings throughout his state.

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WASHINGTON NEWS

Help for "Small" Farmers

There now looks to be agreement in Washington that something more must be done to improve the lot of low-income farmers. Chances are better than ever that Congress will vote larger appropriations for "small" farmers.

Many extension folks, therefore, are almost sure to find themselves with much more to do in (1) planning for special low-income programs, and then in (2) carrying out those programs. Senate Ag. committee members, returning to Washington from their tour of the nation, list "help" for the small farmer as a must for action in this congressional session. Economic problems of many small farm families, "warrant the attention of the entire nation," in the words of a House subcommittee that recently toured the South.

Jay Richter

Development programs aimed at improving income of low-income farm families are being started in some states, despite refusal of Congress last year to grant Secretary Benson special funds for setting up "pilot" programs. In Texas and Tennessee, for instance, specific counties have been marked out for experimental work.

USDA, meantime, has named these people in various agencies to be responsible for rural development: Sherman Johnson, Agricultural Research Service; Robert A. Ragains, FHA; Margaret Hagood, AMS; Robert D. Partridge, REA; Charles E. Kellogg, SCS; Charles A. Sheffield, Extension; William S. Swingler, Forest Service; Russell C. Engberg, Farm Credit; Joe Doherty, Office of Information.

By Fred Bailey and Jay Richter

Agricultural Services

(Exclusive to Better Farming Methods)

Who Will Get the Credit?

Although practically everybody is ready to get going on a small-farm program, one big stickler remains—the question of who will get credit. Benson critics have made contradictory charges, saying his program is a steal from previous Administrations . . . that he wants to "plow under" the small farmer . . . that he is going too slow.

Upshot last year was a lot of confusion. It wound up in denial by Congress of extra funds for Extension to carry on rural development work. However, lawmakers did vote $15 million in extra loan authority for FHA. (Benson had requested $30 million for FHA).

What About the Soil Bank?

Soil Bank? Conservation Acreage Reserve? Storehouse of fertility? Whatever you call it, there now looks to be strong possibility that a plan will be okayed by Congress for production control . . . linked in some way with conservation.

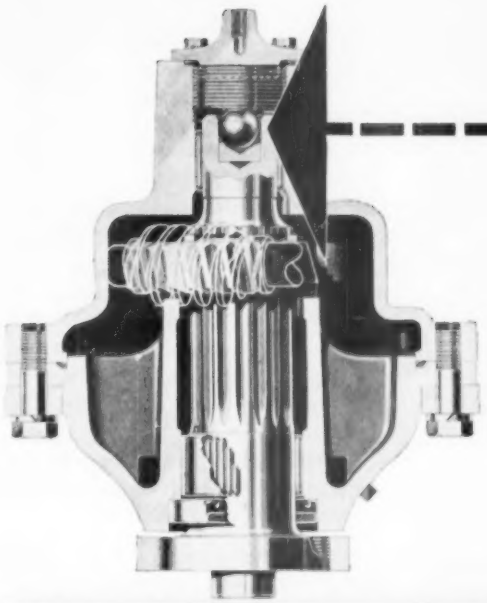
What Mr. Benson would finally favor was not known at press time, but a department "soil bank" task force had worked up a program—and a big one. Based on studies of various proposals, the department group made these tentative suggestions (which had not yet been officially revealed):

(1) That agreements to last some five years be made between the government and individual farmers to convert specified crop acres to grass, forage, and trees. For doing this, the farmer would get yearly payments of 5 to 7 percent on the appraised value of the acres, plus $15 to $20 per-acre payments for seed, and maybe some additional money through ACP.

(2) County ASC committees would operate the program which might remove some 10 percent of the nation's cropland from production. The plan would be voluntary, although farmers who did not cooperate probably would lose price support.

(3) Cost of the plan might be between $400 million and $500 million the first year. Individual farmers could be paid as much as $5,000 per year.

(4) A provision of the plan that would be likely to create most controversy concerned grazing on set-aside acres. Would it be allowed or not? Feeling of the USDA group was that grazing probably should be allowed, because there would be no practical way to prevent it. Grazing of converted acres, on the other hand, would certainly arouse strong opposition from livestock



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for easier steering and longer wear

Steering is easier than ever before with revolutionary new Case Uni-Thrust Suspension—a simple assembly that virtually puts an end to wear, wobble and shimmy. One large, hardened steel ball, slightly flattened on top, supports the front-end weight of the tractor, yet provides supremely smooth, precise response without effort at the slightest touch of the steering wheel. Should adjustment for wear be necessary after long, hard use and constant shock loads, it is done quickly and easily by merely turning a threaded plug directly over the ball.

CASE "400" 4-Plow

Achievement in truly great practical application of advanced engineering research is mirrored in the 4-plow Case "400." Owners everywhere testify to its superior performance, efficient and economical use of fuel, convenient and comfortable handling qualities . . . all based on a combination of new features that stand as symbols of mechanical progress and vision. To name only a few, there's the new Powrcel diesel engine that starts directly on diesel fuel at the touch of a button . . . the new Powrdyne engine for gasoline, LP-gas or distillate . . . the Powr-Range transmission with eight forward speeds and two reverse . . . amazing Duo-Control hydraulics.

Send for Films on All the Facts

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. . . national farm organizations express views on soil bank idea.

producers and dairymen. "The government," they would charge, "is subsidizing competition against us."

Views of Farm Groups

Views of farm organizations vary widely on so-called soil bank proposals. The Farm Bureau long has favored the idea of what it describes as a "Soil Bank," but had not agreed at press time on how it would operate.

Hope of FB leaders was to come up with a proposal following the organization's recent annual convention in Chicago. The Iowa Farm Bureau, meantime, had worked up a soil bank plan for consideration of the national membership that was much like the USDA task group's tentative proposal.

National Grange leaders oppose both soil banks and landleasing. The Grange membership, at the organization's recent national session in Cleveland, came out in support of an expanded ACP conservation program as a method of temporarily taking crop acres out of production.

Figures were not publicized by the Grange. However, leaders make it clear that they would favor expenditure of $1 billion and more to expand conservation programs during the present farm "emergency."

Farmers Union leaders are pushing for a "conservation acreage reserve." The approach is somewhat like that taken by USDA's task force. The government would contract with farmers for retirement of land, receiving incentive payments reaching a maximum of $2,000 for a single operator. The plan was put in legislative form in 1955 by several lawmakers.

Tax Guide for Farmers

County agents now should have in hand a booklet called "Farmers' Tax Guide," a 64-page set of instructions on how farmers should fill out their next income tax forms.

Prepared by the Internal Revenue Service, 715,000 copies were to be distributed to county agents. Free copies of the booklet also were to be available to farmers from the Internal Revenue Service's field offices.

Officials in Washington describe the booklet as being "written in plain language" (this truly would be a departure from previous government practice). Anyhow, the booklet describes step-by-step how to fill out forms, includes sample forms, and answers to many questions.—*End.*

A Calendar Reminder

Kansas county agents devise a "reminder" system for their farm families.

Kansas county agents, Clarence Hollingsworth and Ray Ethridge, devised a unique idea for their Greenwood county, Kansas, Balanced Farming families to help them follow a planned livestock system.

They purchased large 16 x 20 inch bank-type calendars for each of their 38 cooperating families. The calendar hangs in kitchen, hallway, or workshop of the home so that it can be readily seen by all members of the family every day.

On each of the calendars for each cooperating family, the agents typed, under each name, suggestions and reminders concerning the livestock program of each farm. In addition to a ready reference, each family could see at a glance daily and

These are the two agents responsible for this program—Clarence Hollingsworth and Ray Etheridge, Greenwood county, Kans.

monthly items that should be checked on their particular farm.

Ethridge, assistant county agent working with the families, has gone so far as to give each livestock system a different color. He thinks this gives the family a better chance to follow their own individual program. A cooperator, for example, whose major livestock system is deferred steers and minor is hogs, will find his beef program printed in black with his swine program in red.

Balanced farming cooperators like this calendar idea because it gives them suggested items for their own 12 month livestock system that should be done at the right time.

The district extension agent, Frank Blecha, liked the idea so well that he asked other Eastern Kansas county agents to adopt it, too.

Agent Controls Brush

One of the most grass minded county agents in Texas is R. O. Dunkle, Graham, Tex.

"Dunc" for years has carried on outstanding grass and range improvement demonstrations, including brush control work, with the farmers and ranchers in his county.

He originated the weekly range meeting where farmers and ranchers met at a designated place for the study of grasses including indentification, fertilization, seeding rates, controlled grazing and rates of stocking, and the best methods of elimination of brush, especially post-oak.

An annual tour is held. The tour this past June featured chemical brush control demonstrations. It attracted over 70 ranchers and farmers from a seven county area indicating the intense interest in this work.

The group saw where stocking rates had been increased by 450 percent on the Miller Ranch five miles east of Graham by spraying the Post Oak with 2,4,5 T Ester form of spray.

The group noted that brush on bulldozed areas produced bunch grass whereas the sprayed area produced bunch grass in larger amounts. *End*

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By Herbert L. Schaller
Editor

Photos by Better Farming Methods

Atlantic City convention report

NVATA—Up and Coming!

● 1955 WAS A BANNER year for the National Vocational Agricultural Teachers' Association.

Membership reached an all time high of 9095, representing an increase of 723 for the year. Oklahoma affiliated with the national association during the year, thus bringing all states into membership with the NVATA.

Attending this national convention, held in Atlantic City, N. J., December 3-8, were over 200 delegates from 39 states. This marked one of the largest representations ever registered at an NVATA convention.

Peterson Lists Problems

In the president's annual report to the convention, S. F. "Pete" Peterson, genial head man from North Carolina, listed many of the problems that might con-

TOP—This group of North Carolina ag teachers watches with interest as their national president "Pete" Peterson, a fellow North Carolinian, illustrates a point of discussion. L-r: J. H. Mobley, S. B. Lacey, R. J. Lyday, R. L. Souther, E. F. Hubbard, and Allen Jobe.

MIDDLE—Many negro vo-ag teachers attended the convention. Here, talking with H. E. "Abe" Throckmorton, vice president, are P. P. Wimbish, S. T. Holmes, F. W. Nicholas, and E. L. Morris, all from Virginia.

Officers elected to guide the NVATA during the coming year include, back row, James Wall, Nebraska, Paul Mechling, Ohio, Robert Bishopp, Wyoming, all vice presidents; Lionel Cross, California, secretary. Front row, S. F. Peterson, North Carolina, past president; Luther Hardin, Arkansas, Kenneth Henderson, Kansas, vice presidents; Neldon Taylor, California, treasurer; H. E. Throckmorton, West Virginia, vice president; and Robert Howey, Illinois, president.

That's Joe Winkle, Texas, alternate vice president, Region II, at the piano, with Kenneth Henderson, vice President Region II, Bob Wall, NVATA past president, Virginia, and a fellow Texan enjoying the concert.

It just can't be that dull, fellows! With Robert Jewell, Michigan, talking, the others look with disinterest on the expounded virtues of the great state of Michigan. L-r: Jack Nowels, Ohio; Joe Farmer and R. Boyd Calvird, Missouri.

front teachers in the coming months.

He asked delegates what the effect of decreasing farm population might have on the size of vo-ag classes and the number of teachers needed.

What are answers to the problems of young farmers getting started in farming with the high cost of land, equipment, and other factors?

What can vo-ag do for the increasing numbers of part time farmers?

Is it in the best interest of public schools to allow agencies outside the school administration to conduct educational programs in the schools?

"We must accept the responsibilities, we must face facts, we must make decisions, and we must execute our plan for reaching satisfactory solutions of the problems that affect our program and American agriculture," said Peterson.

"We must go forward. Standing still is the beginning of a backward movement."

He told delegates that many national, regional, and other organizations are coming to NVATA to make contacts with vo-ag teachers in the field. "If NVATA had done nothing more than provide national contacts for vo-ag teachers, it would have well repaid the time, effort, and money that has gone into making our organization."

Peterson concluded: "NVATA has lifted the profession of vo-ag teaching to a position of respect and high esteem."

Doing Is the Key

At one of the joint agricultural meetings held in conjunction with the American Vocational Association convention, Carsie Hammonds, University of Kentucky, spoke on "Learning to Do that Must Not Be Overlooked."

He pointed out to teachers that the social and economic worth of man depends upon his doing, and his doing depends upon his learning. In vo-ag, teachers have a splendid opportunity to practice this truth through supervised, on-the-farm projects. He suggested that teachers are required to spend too much time in the classroom, not enough time in the field.

A field, according to Hammonds,

The passing of the gavel—from past president to president. On the left: S. F. "Pete" Peterson, North Carolina, retiring president. On the right: Robert Howey, Illinois, new NVATA head man.

These men won prizes in the "Exchange of Ideas" contest. L-r: William D. Smith, Kansas; R. W. Nicholas, Virginia (prize accepted by E. L. Morris); Vernon Bachmann, Nebraska; Walter Baumgartner, California; J. H. Mobley, North Carolina; and Paul Struewing, Ohio.

This barn in Virden, Illinois, was re-sided in 1943 with Ruberoid Stonewall Board. Today, twelve years later, it looks just as fresh and new as it did then—and not a penny has been spent on painting in that time. Stonewall Board means maintenance economy that farmers like!

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where vo-ag teachers need to do much more work is in the young farmer area. Vo-ag teachers need contacts with young farmers, and vice-versa. These young men are a very important segment of the vo-ag teachers work and should not be neglected.

In conclusion, again pointing out the weakness of many vo-ag programs in the area of on-the-farm instruction, Hammonds said: "If on-the-farm instruction is not necessary, let's quit talking about it—if it is let's make it a reality."

Other Problems Cited

Another speaker to the combined ag groups was W. T. Spanton, chief, Agricultural Education Branch, Washington, D. C.

He touched briefly on the related occupations problem advocated by some in the field of vo-ag. He pointed out that vocational education in ag was intended and is still best suited to meet the needs of those persons who are engaged in farming or are preparing to farm. With increased mechanization and technical skills, this need is even more pronounced. The present program still has much to do to meet the principal objectives of vo-ag.

He said that with the present teacher shortage, to add related teaching jobs to the present schedule would require an additional 10,000 teachers.

Warns About Contests

Spanton also noted the trend in FFA and vo-ag contests sponsored by commercial interests. There is danger in these, he said, if states are not careful how they are handled.

He emphasized that the FFA Foundation was conceived and organized on the national level to provide a system of awarding prizes through a program where donors are not identified with any specific prizes, awards, or activities.

"The states should either attempt to avoid all possible criticism of commercial influence on our contest and award programs, which I believe can be best achieved through national and state FFA Foundations . . . or discard such a plan and accept all individually sponsored commercialized contests and awards," said Spanton.

Men Win Prizes

Another "Exchange of Ideas" contest was held, with prizes being awarded by National Agricultural Supply Company, Delta Power Tool Division, and Broadhead-Garrett.

Delegates voted down by an overwhelming majority an amendment to the NVATA constitution that would have extended the privileges of active membership to teacher trainers, supervisors, and state directors.

The Sears Foundation tour, an annual highlight of every convention, again drew a record crowd. Ag teachers were privileged to see some of the types of agriculture practiced along the eastern seaboard.

H. E. Throckmorton, regional vice-president for the eastern area, presided at the annual NVATA breakfast. Principal speaker was Ed Bass, state supervisor of agricultural education, Virginia.

Far left is Earl McKim, Michigan, alternate vice president, Region IV. With him are Orvel Floyd, Illinois, and Bob Howey, new NVATA president.

Illinois Man President

Elected president for 1956 was Robert Howey, Sycamore, Ill. He succeeds S. F. Peterson, Ayden, N. C. Neldon Taylor, California, was re-elected treasurer.

Vice presidents elected were Paul Mechling, Lancaster, O., Region IV; and Kenneth Henderson, Garden City, Kansas, Region II. Alternates: Earl McKim, Eaton Rapids, Mich., and Joe Winkle, Pittsburg, Tex. Larry Blackburn, Berlin, Wis., was elected alternate vice-president from Region III to fill a vacancy in the region.—*End*

★

Fish Byproducts in Feed

Chicks fed a ration containing fish byproducts made greater gains than chicks on a ration containing no fish byproducts. This was shown in tests at the University of Wisconsin.

After four weeks, the chicks fed the ration with fish solubles added averaged between 21 and 110 percent heavier than chicks on the other ration. Other tests indicated that the unknown growth factor in the fish byproducts (and in other animal proteins) also is transmitted from hen to chick.

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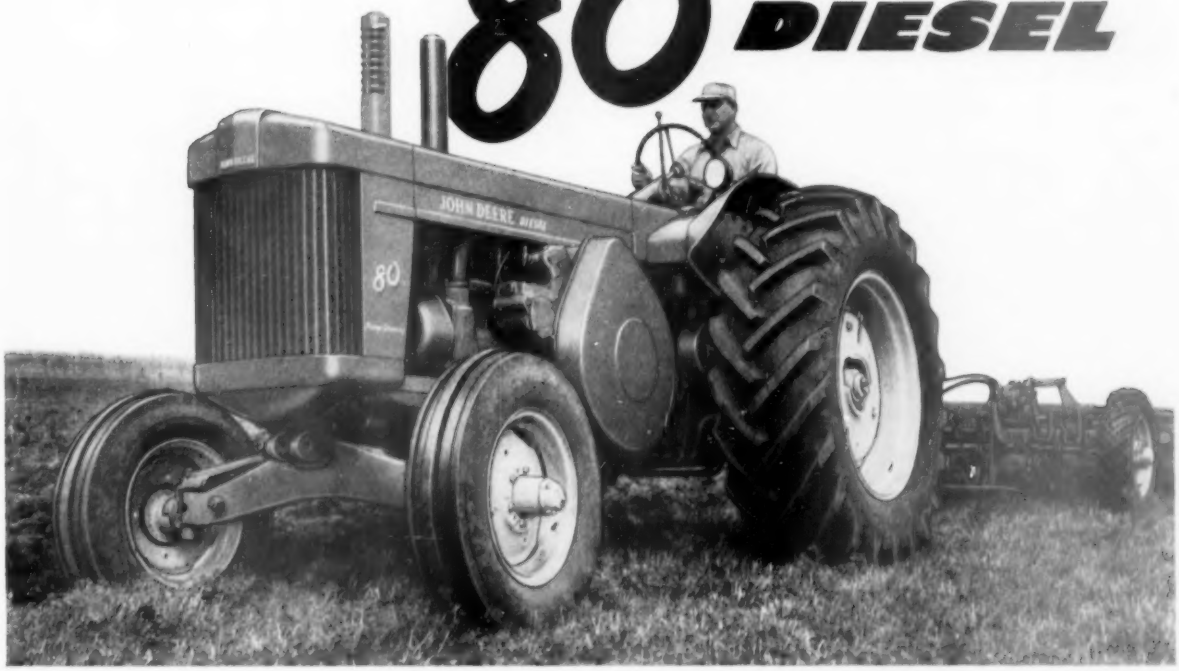

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*Factory tests show approximately 65 h.p. on the belt; 57 on the drawbar.

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Here's big capacity shown in action below. It's the new John Deere Model "80" *Diesel* disking a 21-foot swath with the new Model "FW" Disk Harrow. With capacity like this, your big jobs get done in a hurry at lower cost.

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Are Price Supports the Cure for Farm Ills?

By O. B. Jesness
University of Minnesota

THIS IS THE FIRST of three articles on the farm situation written specifically for agricultural leaders by O. B. Jesness, head, Department of Agricultural Economics, University of Minnesota.

These articles are not written from the standpoint of taking sides or promoting any particular program in the present controversy over the agricultural problem. They are, however, designed to give agricultural leaders background information on what the causes might be, why certain things will not work, and what we might do to help alleviate the situation.

In presenting them in this fashion, perhaps these articles might form a basis for discussion with farm people where agricultural leaders can use this information to help clear up problems of questions concerning certain basic facts.

Dr. Jesness has had long experience in the field of agricultural economics and particularly in this area of our current farm problem. He is well equipped to discuss these points for you, and considerable amount of his time is given to speaking and holding group discussions with farm people and farm leaders.

Two additional articles will follow: "Can We Eat or Export All Our Surplus?", and the last article, "What is the Answer to the Farm Problem?"

Look for these two articles in the coming issues of Better Farming Methods.

● ALL IS NOT WELL with agriculture. That much is clear. The debate warms up over what the trouble is and what should be done.

Farm income is the most readily available measure of the state of agriculture's health. Prices are viewed as the most effective lever in raising incomes so they are in the limelight.

Many seem to assume that price supports at certain levels will automatically solve the problem. They clamor for the retention and extension of 90 per cent supports. Others subscribe to the price support idea but see advantages in flexibility in supports as a means of getting and keeping things in better balance.

The debate over price supports and their levels often makes no serious effort to diagnose the ills for which they are perscribed as the cure.

Program Began in '30's

The price support program is an offspring of depression, having been started to promote economic recovery in the early 1930's. Those who view the present as "depression" see logic in employing the same medicine today as in the '30's. However, it is one thing to describe some farm prices as "depressed" and quite another to explain those weakened prices in terms of depression conditions.

This is not 1932. With record employment, record output, record consumer and national incomes, the present is a period of boom, not depression. This is fortunate for the farmer for were it not so agriculture really would be in trouble.

Why Are Prices Down?

If farm prices are not down because of depression, what are the reasons?

Before giving a specific answer to this it may be noted that the present picture sometimes is painted darker than it actually is. The parity index in 1947 stood at 115; more recently it has been down around 85. Roughly, half of the adjustment since the war peak has been that of bringing farm prices more in line with former relationships.

It has gone beyond that but we are not in a situation of rapidly skidding farm prices and rapidly rising costs. Recent years have seen a gradual sag in farm prices with costs remaining relatively stable or showing moderate edging upwards.

Abundance—Not Depression

The explanation for the farm price behavior lies in abundant supply of certain commodities rather than in depressed demand. The drop in some agricultural exports from war peaks signifies a return to a more usual situation, not a depressed market.

The abundant supply comes in part from a carryover of expanded production to meet unusual demands of the war period. This shows up especially in wheat where acreage jumped from 50-60 million to over 80 million.

Another cause is the rapidly increasing productivity of agriculture in this period. Mechanization and technology have brought a revolution in agriculture of a magnitude that is hard to grasp while we are so close to it. The effects of these forces are intensified by the difficulty agriculture experiences in adjusting output downward and by the relatively inflexible demand for farm products.

It Is Easy to Expand

Farmers can expand output to meet war needs much more readily than they can cut back later on. The inelastic demand means that a modest shortage as in wartime drives farm prices up fast and in turn a moderate surplus later may drive prices down.

In a well-fed nation such as ours, consumers may change the quality of their diet in response to price and income, but do not eat more merely because the supply is there or income is up. If they eat more of some things, they will eat less of others.

Per capita consumption of meats, some dairy products, eggs, some fruits and vegetables has been going up over the years but this has been balanced by less consumption of grain products and potatoes.

Supports Not Whole Answer

Price supports do not solve this problem. Instead they tend to make it worse because they continue incentives to produce goods for which there is no market home and which, consequently, wind up in CCC stocks. Taxpayers have about 7 billion dollars invested in such holdings and are shelling out about a million a day for storage charges alone.

This is not to say that supports have not helped bolster the price

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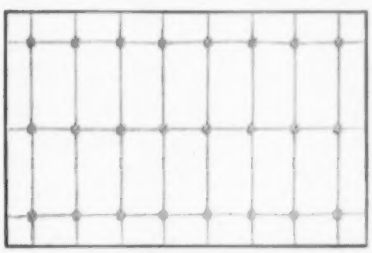

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Steers fed in wire enclosed lots made 28% faster gains with 20% less feed than steers in wood enclosed feed lots*

For hot weather feeding, steers do far better in wire fenced feed lots, research workers at the University of California have discovered.

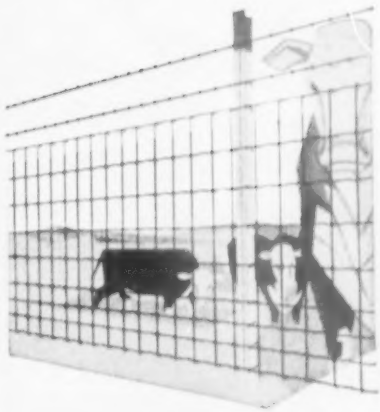
These studies were carried out to determine how to keep cattle more comfortable during hot weather.

The two feed lots, or corrals, as they are called in California, were identical except the shades and the fences.

Each had a dirt floor. They were surrounded by an alfalfa field. In the wire enclosed lot, a hay-covered shade was used. In the wood enclosed lot, an aluminum shade was used. Ninety square feet of shade per animal was provided.

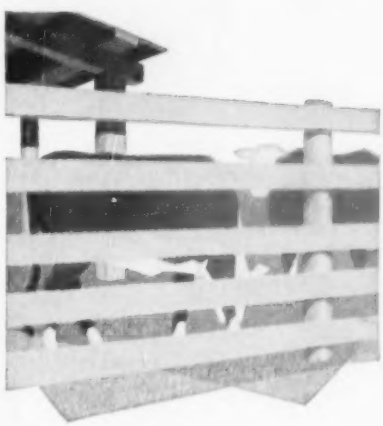
The test continued for 84 days. The same rations were fed. Water was supplied in circular concrete drinking water tanks. Seven Hereford steers with an average initial weight of 814 lbs. were assigned to each pen.

A condensed summary of results follows:



	FEED LOT CONSTRUCTION	
	WIRE	WOOD
Average temperature in pen	85.7° F	89.5° F
Average wind velocity in pen	2.43 mph	1.11 mph
Water consumption per 100#	1.17 gal.	1.42 gal.
Average gain per day	1.94 lb.	1.51 lb.

Steers in the wire feed lot required 20% less feed per 100 lb. gain than in the wood enclosed lot.



The author's conclusion: "A substantially cooler environment for cattle can be provided by proper feed lot construction, good shade, cool water and a reduction of radiant heat" (from wooden fence).

For more complete details about this test, and suggestions on how to build fences for feed lots and farmsteads, write Keystone Steel & Wire Company, Peoria 7, Illinois.

* See "Environment Comparisons and Cattle Gains in Wood and Wire Corrals" by N. R. Ittner, T. E. Bond and C. F. Kelly, University of California in August, 1955 issue of Journal of Animal Science.

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structure for such products as wheat, cotton, tobacco, and dairy products. They buy us time to attack causes. Unfortunately, they have become so attractive that they tend to keep us from vigorous efforts to attack the problem at its base.

Other Action Is Necessary

This is not simply a scrap between rigid and flexible supports. The latter may help ease the problem but in some instances, at least, other action is necessary.

Present marketing quotas and allotments merely keep some land out of wheat, cotton, and other controlled crops. The acres show up in other uses so the quotas are spreading rather than curbing the surplus.

While we are holding wheat acres down, we are adding to feed supplies with prospects of creating surpluses later in livestock and products. Meanwhile, the farmer has price incentive to step up output on the acres he is permitted to use in the restricted crops.

He picks the best land, he pours on fertilizer and does other things to get higher yields.

Stop Worshipping Supports

Present quotas also are subject to criticism because they do not distinguish adequately between classes and grades in surplus and those which are not. They curb the farmers and the areas that have not expanded just as much as those who have. They do not distinguish between lands that should stay in and those that should go out.

No one proposes that we end price supports all at once, after we have created these big stocks. *However, it is time to stop worshipping price supports as though they were the final answer and take seriously the job of attacking the basic problems* of bringing supply into balance with available markets and of fitting the farm plant to present-day conditions.—*End*

★

Antibiotic-Hormone Feeding

The Chas. Pfizer & Company, Inc., has reported that a combination of terramycin and the hormone stilbestrol added to fattening cattle rations improves weight gains and feed efficiency. Such improvement is more than either the antibiotic or the hormone gives when each is used alone.

Feed efficiency was improved 13 percent in steers given the antibiotic, four percent in those receiving the hormone alone, and 19 percent in those receiving the combination.

book review

Farm Shop Skills

This book is authored by Harry O. Sampson, Albert S. Mowery, and Harold L. Kugler, professor of agricultural engineering, Kansas State College. It is published by American Technical Society, 848 East 58th St., Chicago 37, Ill., and sells for $4.95. It contains 395 pages.

This book stresses the doing of mechanical farm jobs, jobs that are necessary if farming is to be profitable. Described are many practical jobs and useful farm projects. It is a book designed for both practicing farmers and students of agriculture.

In the book are over 400 illustrations with legends that detail the various mechanical steps involved. Complete drawings, cross-sections, and other charts and graphs make a complete text usable by all classes of people interested in farm shop skills.

The book will bring the farmer abreast with the latest developments in this field.

book review

★

New Rabbit Repellent

A new repellent, TNB-A, developed last year by research workers of the U. S. Fish and Wildlife Service, is effective against rabbits.

Applied either by brush or as a spray to dormant trees, and applied as high as rabbits might attack in case of a heavy snowfall, the repellent was effective in protecting trees from rabbit damage. The solvent must not be used on evergreens, however.

★

Fertilizer Grows Farm Profits

The Nitrogen Division, Allied Chemical & Dye Corporation has launched a new public relations program designed to tell farmers how to make money through the adequate use of fertilizer. Leading farm publications that reach the desks of farmers will carry this message throughout 1956. The advertisements will not mention any fertilizer brand, but will promote the use of all kinds of mixed fertilizers available to farmers. A splendid example of good public relations with farmers.

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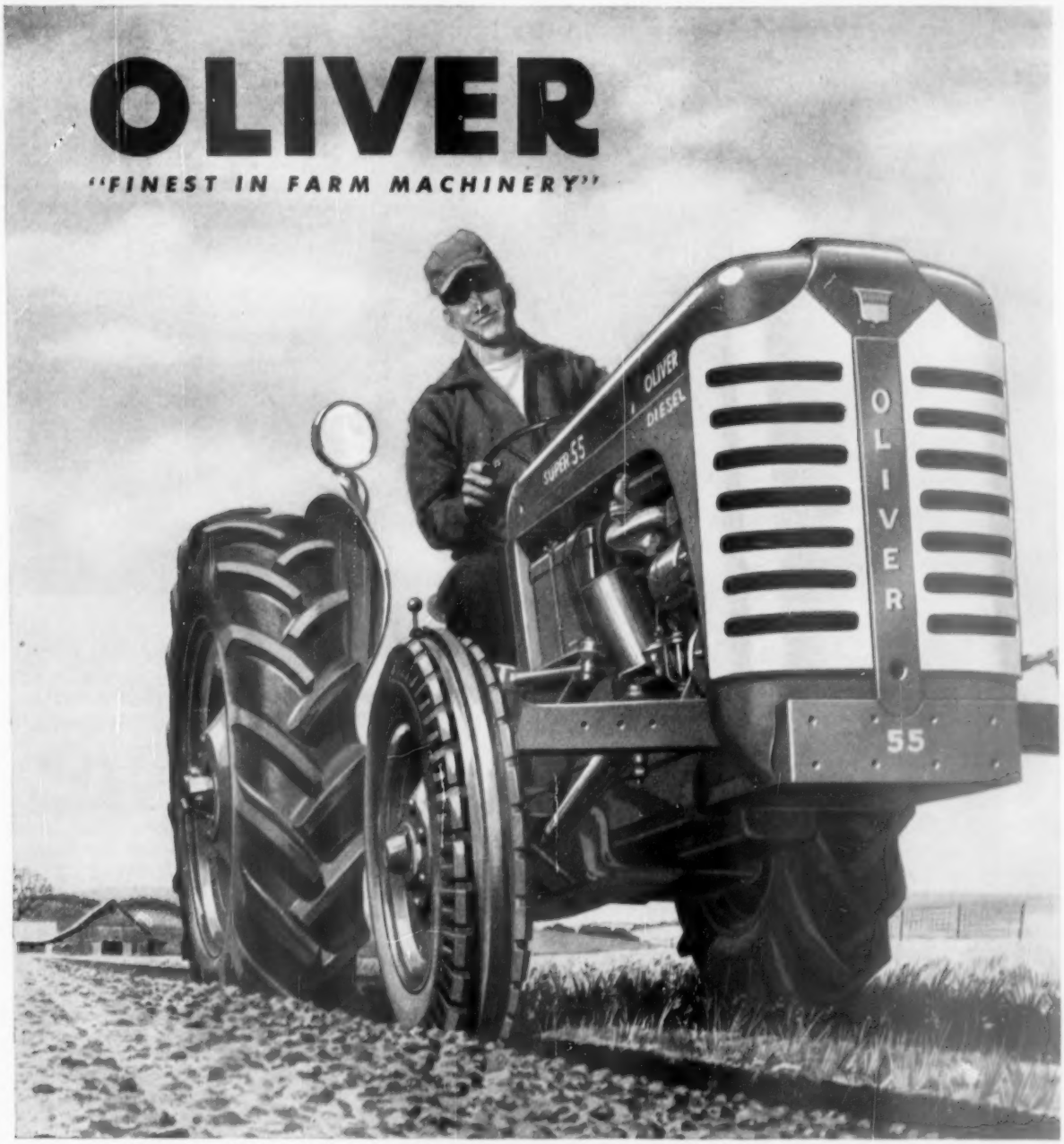

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OLIVER

SECRETARIES

their work can MAKE or BREAK you!

That's why Vermont holds an annual secretarial conference

By Frank L. Barker, Jr.
University of Vermont

● SHE'S MY BRIDGE to the public."

"Secretaries' efficiency and the successful operation of the Vermont Extension Service go hand in hand."

These are the reasons given by the county agents and the extension service officials in the Green Mountain State for holding an annual conference for their secretaries.

The young ladies are feted and dined while they learn because of an *attitude*. It just sounds like good employee-employer relations, but it also demonstrates the important role played by extension service secretaries from county offices and state headquarters. Realizing that their secretaries are their contact with the public the Vermont Extension Service is doing something about it.

Teach Girls Efficiency

From annual reports to public relations, these secretaries are taught to be efficient.

At a yearly conference held at the University of Vermont in Burlington, Vermont's extension secretaries met again this year for an information-packed two-day conference stressing what the 1955 secretary must know and do to be efficient.

At the beginning of the program was a skit dramatizing secretary types by showing through contrast and comparison how the competent and the incompetent secretary appears to others.

Coffee and tea hours were planned between lectures and demonstrations, giving the girls a chance to talk over their office problems, share ideas, and match solutions. This was a successful venture and was described by a state office secretary as an "eye-opener which helped us to understand each other and particularly to realize county office problems."

They Hear Their Voices

Hearing how their voices sounded to others drew chuckles and surprised outbursts of disbelief from the girls. Tape recordings were made of the voices by a local telephone representative who effectively demonstrated a need for voice consciousness. The representative also showed how a voice over a phone could be favorably or unfavorably impressive.

Explanations of voucher preparation answered the puzzling questions that had been bothering the secretaries who found out that time could be saved by avoiding unnecessary detail. Proper preparation of the vouchers made prompt payment possible while incorrect preparation resulted in delays and additional work.

Learn Value of Reports

A USDA official explained the value of annual reports if they are made correctly. He told the secretaries how to make the reports and then explained what happens to them after they are sent to Washington. He showed how each report plays a part in the permanent records after the microfilming and filing process have been finished.

In a panel discussion the secretaries brought up problems that had arisen in their offices and offered suggestions to problems they had solved. A county agent, club agent, home demonstration agent, and the state home demonstration leader formed the panel which discussed better methods and procedures for county offices.

Weekly Conference Helps

One plan that worked well for one county secretary was a weekly conference which helped her plan ahead

for the deadlines. The idea was to allot time for each job so that it could be finished before the deadline. Another secretary offered a plan for filing whereby the material was labeled and the secretary did all the filing. This had avoided the confusion which arose when a number of people used the files.

Forgetting the office for some relaxation and entertainment, the girls attended a play together and were dinner guests of the Vermont Extension Service. Mixing business with pleasure was a good way to get to know each other and ". . . realize that we are part of a team."

After deciding on a state-wide basis what proved to be the best office procedures, the success of the program is being measured in added efficiency. From the secretaries' standpoint it means more work accomplished with less effort. As one secretary aptly summed up what she had gained: "It's easier to know what the right way is than to struggle through and wonder if it's right when you're finished." —*End*

★

New Feed Additive

An experimental dairy feed additive field-tested by Marathon Corporation the past four winters shows promise as a ketosis preventative.

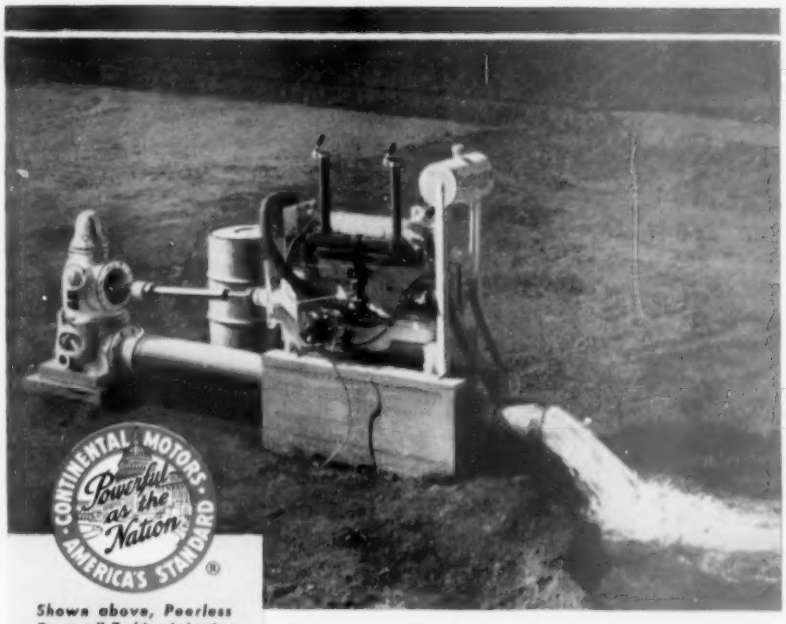
The product, tradenamed Maracarb NC, is a complex mixture of sodium and calcium salts of lignosulfonic and wood sugar acids.

In the most recent tests it was fed, at a level ranging from 2 to 4 percent in formula feeds, to 83 herds comprising 2,144 producing dairy cattle.

Results indicated an apparent effectiveness of 84 percent for the product in the prevention of ketosis. Limited quantities of Maracarb NC will be available for test marketing later this year.

★

"Now let's see a drought ruin our corn!"



Shown above, Peerless Deepwell Turbine irrigation pump with Gearturbo drive and Continental T427. Well is 1,065 ft. deep, with 12 in. casing. Pump setting, 150 ft. with 12 in. bowls; flow 1,600 gpm.

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In addition to its large engines, Continental builds an outstanding line of heavy-duty air-cooled four-cycle models for farm and industrial applications requiring 2 to 3 h.p. Advanced engineering gives them easy starting, high dependability, and unusual lugging capacity at low speeds . . . Options: patented and exclusive Contex® external ignition system, low-level ignition cut-off, 6-1 reduction gear, and other features. Available also for use on kerosene . . . For information on these models, address Air-Cooled Industrial Engine Division, 12800 Kercheval Ave., Detroit 15, Mich.

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extension school succeed when leaders take them to the farm.

In the picture above, E. W. Cake, economist, Florida Agricultural Extension Service, talks shop with two Florida cattle raisers. In the opening class of this school, 229 farmers and ranchers attended.

By Sam Burgess

● FLORIDA'S AGRICULTURAL extension service leaders have come up with a new type of school for farmers that is producing amazing but solid results. While the Sunshine State's fine weather helps attendance, other factors that have sparked and held interest are involved that should work for agricultural leaders anywhere.

The idea began in 1949 and first was tried for citrus growers. Since then schools have been held for cattlemen and poultrymen, also with equal success. The Florida educators see no reason why such schools cannot serve other types of farmers just as well.

Hard Work Pays Off

Here are the ideas incorporated, more or less, in all the schools which their directors believe are most responsible for their success. Underlying them, of course, has been the hard work, careful planning, and enthusiastic cooperation essential to the success of any school or educational program.

These Points Insured Success

1. *Instruction has been taken directly to the farmer.* Classes have been held just as close to his grove, feedlot, or hen house as practical. Rather than invite the farmers to the University of Florida at Gainesville or to one of the 10 branch experiment stations over the state, each school has been held in a town centrally located in the area served.

2. *Instructors haven't tried to cram all the information they have on citrus production, cattle growing, or poultry raising into a one- or two-day session.* Classes have met for two or three hours a night, one night a week, for a period of 6 to 26 weeks, depending upon the particular school. In this way, the farmers have a chance to absorb each lecture before going right into the next.

3. *To supplement what he hears, each student gets a complete set of the lectures given.* These mimeographed lectures are supported by Experiment Station and Extension Service publications and in at least one case a $10 textbook was issued.

4. *Farmers themselves have played a big part in running the schools from the start.* The idea, in fact, came from a farmer—Art Jones, a veteran citrus grower of Vero Beach. Jones, with the late Marcel A. Boudet, Indian River county agent, organized the first school, primarily for new growers in the famed Indian River citrus area. Since then farmers have played key roles on local school committees, along with the county agents and vocational agricultural teachers.

DISCING MAGIC

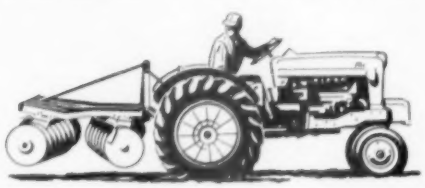
NEW FORD FLEXO-HITCH DISC HARROW

Notice above how the left tractor wheel has dropped into a dead furrow. On most lift-type harrows this would make the left-hand gangs dig in and the right-hand gangs ride high, leaving a strip of undisced ground.

But not with a Ford Flexo-Hitch Disc Harrow. Regardless of the rock and roll of the tractor on rough ground, this disc follows ground contours, discing all the ground to a uniform depth. The difference in smoother discing is quickly evident. But that's not all.

The Ford Flexo-Hitch Disc Harrow is heavy for deep penetration . . . strong for long life . . . flexible for smoother discing . . . adjustable for control of discing action . . . lift-type for easier operation. All these advantages and many more combine to establish a new, higher level of discing performance.

This is another of the ever continuing parade of better designed implements for better farming . . . by Ford. Tractor and Implement Division, Ford Motor Company, Birmingham, Mich.



LIFT-TYPE, TOO! The harrow "rides" to and from the field. Turns at point rows, and headlands are made without dirt ridging. Grassed waterways can be crossed without stopping.

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A GREAT NEW CHAIN SAW DEVELOPMENT
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If you want the *best*, see MALL *first*. Again, MALL has brought out a new development that means a bigger chain saw value for pulpwood and timber production, woodlot, fence post and cordwood cutting. MALL has combined the high speed *Direct drive* gas engine with the new Snap-on Roller Bearing Nose Guide—a combination that speeds cutting without frictional heating and gives up to 20% more usable horsepower. Try it in your own timber; write for FREE demonstration.
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American Brahman bulls on cows of other breeds produce 10% more weaned selling weight at less cost than pure European cattle—25% more on Brahman crossbred cows. Reason: hybrid vigor, no pink-eye, ability to stand the heat. For more information write: Dept. K
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Helpful Booklets
Pages 38-39

5. Another key reason why the schools have enjoyed continuing interest and regular attendance is the fact that *with one or two exceptions, registration has involved a cash layout for every student.* Fees have ranged from $35 per student for the first citrus school which began in January, 1949, at Vero Beach to the $7.50 and $5 fees charged for the others.

Rather than scare people away, these fees have seemed to stimulate enrollment. About 20 were expected for the Vero Beach school and 76 registered, reaching for the $35 fee in the process. This school can be cited as an example of how each student was given a real return for his money.

The school ran for 26 weeks and the registration fee covered the cost of the $10 textbook on citrus production mentioned above. It also paid each student's fare for chartered bus trips to the USDA and State Citrus Experiment Stations for tours of these. Also, each student received a bound volume of the 26 lessons which Fred Lawrence, citriculturist with the Florida Agricultural Extension Service, termed the most complete amount of citrus information on file.

6. *Still another reason for success of the schools—which has come first instead of last as listed here—is good publicity and promotion.* The committees themselves have issued attractive circular letters and flyers and newspaper support has been sought and received. Bob Norris, Lake county agent, who with Fred Baetzman, Orange county agent, has organized and held successful citrus, cattle, and poultry schools for Central Florida, feels that publicity was of extreme importance in the outstanding success of these schools.

Florida's Agricultural Extension Service workers haven't abandoned any of the "tried and true" methods of extension education. Demonstrations, slides, movies, tours, and publications have played an important part in all the schools. Use of each, in fact, has been strengthened rather than replaced. Florida's leaders do think, however, that through these schools with their special features they are giving Florida farmers maximum extension service.—*End*

★

Chemical Kills Thistle

The Canada thistle, one of the most troublesome weed pests, may bow to a new chemical, amino triazole. This weed-killer applied to thistle foliage in the bloom stage or to thistle stubble has given excellent control in preliminary trials by Oregon State College.

The chemical also shows promise for controlling certain brushy plants and Russian knapweed.

book review

Farming

"Getting Started in Farming" is authored by a number of prominent people, including Milo J. Peterson, head, department of agricultural education, University of Minnesota. It is available from the D. Van Nostrand Company, Inc., 120 Alexander St., Princeton, N.J., and sells for a price of $4.20.

This book is intended primarily for the Future Farmers of America who are studying vocational agriculture in the public schools. It should also be helpful to young farmers who are getting established on farms, and who are interested in analyzing their farm management problems.

Attention is centered on the management problems of the farm. Special consideration is given to problems that arise in different parts of the country. The book also recognizes that the farmer is affected by changes outside the line fence of his farm as well as by what happens within the farm boundaries.

The book is conveniently divided into 17 chapters, and there are a number of pictures, charts, and informative tables to illustrate points used and discussed throughout the text.

book review

★

Good Pastures Pay

Work at Iowa State College indicates that renovated pastures have produced from two to two and one-half times as much animal gain as unimproved pastures. Researchers found that the cost of renovation varies mainly with lime and fertilizer needs.

Birdsfoot trefoil was the legume most often seeded. Increased production can be expected to last for several years, with trefoil, to ten years.

★

This is a new hog feeder made by James Manufacturing Company, Fort Atkinson, Wis. It will handle 24 hogs on a 24-hour self-feeding program. It is easy to move, sturdily constructed, and light in weight.

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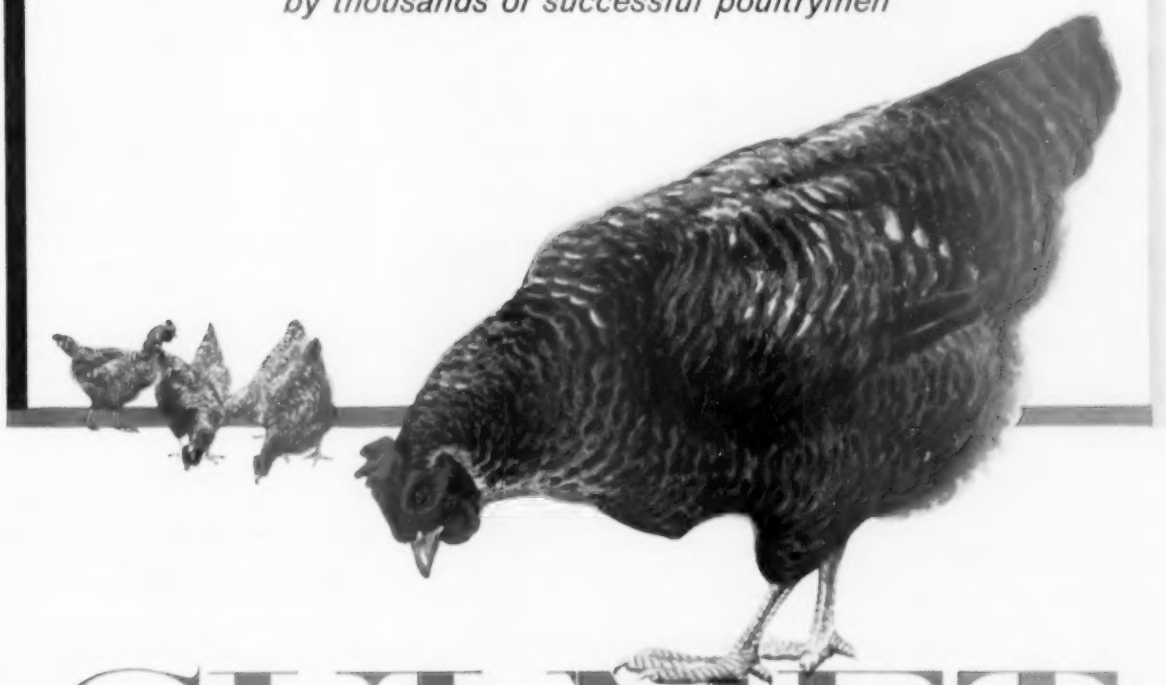
by thousands of successful poultrymen



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New treatments come and go—but experienced poultrymen have used, proved and successfully depended upon SULMET!

Why? Because they know that these four major poultry diseases are the principal causes of costly losses.

These diseases usually result in serious profit losses to poultrymen. Make no mistake—these losses are wasteful and unnecessary! SULMET SOLUTION in the drinking water gets powerful, effective medication to sick birds *fast!* SULMET is famous for its powerful action against *many* bacterial infections.

SULMET DRINKING WATER SOLUTION is the fast, easy and economical way to control any or all of these diseases. Keep SULMET on hand — when disease strikes be ready to protect your *flocks* and profits.

Available at your druggist, feed store or hatchery. Write for free literature.

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Sul-Po-Mag
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DOUBLE POWER
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Farmers in many crop-growing areas are asking for fertilizers containing *Sul-Po-Mag*. They want the double power, double value in the balanced combination of two essential plant foods supplied by *Sul-Po-Mag*—sulfate of magnesium and sulfate of potash, both in water-soluble form.

SULFATE OF MAGNESIUM—Promotes high crop yields and quality on magnesium-deficient soils. Soluble magnesium is so important to healthy plant growth, it is often called the *fourth element in the fertilizer bag.*

SULFATE OF POTASH—Since this premium potash material has a maximum chloride content of 2.5 percent, it can be safely used to improve yield and quality on such chloride-sensitive, high value crops as tobacco, potatoes, vegetables, tree fruit and small fruit.

Sul-Po-Mag pays big returns in crop quality and yield from a very modest investment in premium quality fertilizer.

Potash
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INTERNATIONAL MINERALS & CHEMICAL CORPORATION
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Fertilizer Supplies Are Ample

By Russell Coleman
Executive Vice President
National Plant Food Institute

● FARMERS THROUGHOUT THE United States in the crop year 1955-56 will have and will use more fertilizer than at any time in the history of the Nation's agriculture.

Russell Coleman

There is one principle reason for the upward trend in fertilizer usage: The return for a dollar invested ranges from $3 to $15.

At a time when farmers are caught in a so-called "price-cost squeeze," the efficient use of fertilizer never was more important in relation to the need for lowering the per unit cost of crop production.

Fertilizer Key to Profits

More and more farmers are viewing fertilizer as the key to greater profits on fewer acres. During this period of over-production, the only hope for the American farmer is to find better ways and means of maintaining or increasing his profits by growing fewer total commodities. And this means finding better ways of reducing per unit production costs so that on bushels or bales the farmer produces, he can realize more net income.

Fertilizer is one of the most important tools the farmer can use for cutting per unit costs through more efficient production, for improving quality, and for helping to stabilize farm income.

Here Is 1956 Outlook

Now, let's look at the outlook for the coming year:

Official estimates indicate that the supplies of the three major plant foods in 1955-56 will be about 6.589 million tons, or approximately 2.5 percent greater than the 1954-55 supply. This indicated increase in production is based on existing rates of production, trends in usage, and foreign trade, rather than production capacities. The fertilizer industry never was in a more advantageous position to meet the requirements of the American farmer.

In terms of nitrogen, phosphate, and potash, the supply picture looks like this:

Nitrogen

Prospective supplies have been placed at 2.35 million tons, or an increase of 4.4 percent over 1954-55.

Nitrogen has been a seriously limiting factor in previous years. But, remarkable production strides have been made in the production of nitrogen to overcome this difficulty. The present rate growth indicates the need for three million tons by 1959-60. And the demand can be met by North American plants now in production or under construction by July 1, 1956.

Phosphate

The 1955-56 supply of available phosphoric oxide (P_2O_5) is expected to be about 2.3 million tons. Approximately the same quantity was available in 1954-55.

Production capacities for P_2O_5 have increased from January 1, 1952, to July 1, 1955, at these rates: Normal superphosphate, 4 percent; concentrated superphosphate, 187 percent; and miscellaneous phosphates, 52 percent.

Potash

In 1955-56, official estimates indicate that potash available for fertilizer, in terms of potassium oxide (K_2O), will be 1.94 million tons, or an increase of 4.3 percent.

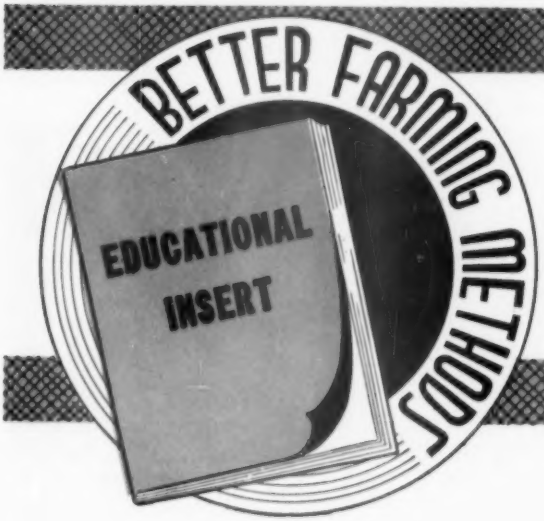
Potash supplies have kept pace with demand.

Notwithstanding the relatively bright outlook for fertilizer supplies in 1955-56, farmers would be wise not to wait until the last minute to place their orders. By placing their orders early, they can be assured of receiving the kinds and quantities of plant foods to meet their particular requirements.—*End*

★

When Fed Oat Silage Cows Need More Grain

Extension workers at Iowa State College suggest that farmers feed cows a little more grain in their rations when oat silage is fed as compared to corn silage. This is due to a lesser amount of total digestible nutrients.



CALIFORNIA SPRAY-CHEMICAL CORPORATION

This four-page educational insert is sponsored by the California Spray-Chemical Corporation. Additional copies may be obtained by writing to: Owen R. Thorpe, Manager, Information Service, California Spray-Chemical Corporation, Richmond, California.

Safety Reference Information for Farmers and Agricultural Leaders

BASIC MINIMUM PRECAUTIONS FOR SAFETY IN THE USE OF PESTICIDES

THE WIDESPREAD use of pesticides is growing by leaps and bounds. More and more farm people are using them—in the home, barn, grain bin, garden, field, and with livestock.

IMPORTANT!

The character and ingredients of pesticides, the conditions under which they are used, and the susceptibility of the persons, animals or plants that may come in contact with them, are subject to wide variations. It is impossible to lay down comprehensive rules for safe use of all pesticides under all conditions and uses. The following guide therefore sets out only certain basic *minimum* precautions that should be observed in any event, but which may require amplification and supplementing according to circumstances. Consult directions and warnings on the labels and related literature of the particular product used.

Purpose of This Educational Insert

Such a rapid growth in the use of pesticides has resulted in **many farm people using them without due regard for safety.** It is of prime importance to the farmer and agricultural student to know how to use pesticides properly and safely.

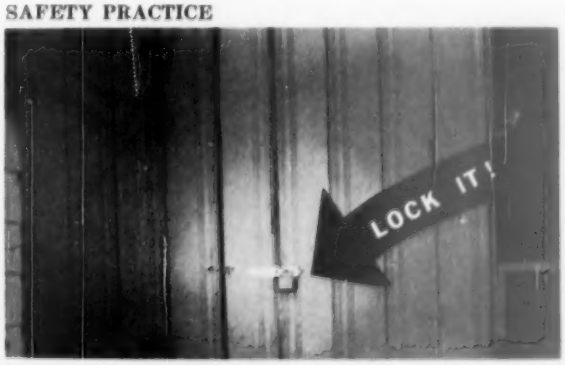
Almost any product or farm operation can be hazardous if, in use, the common rules of performance and safety are not observed. Take driving a tractor, for instance. That can be extremely dangerous, especially if you abandon every good and sane rule for operating it safely.

The same **principles** apply when using agricultural pesticides.

This insert is designed to help the farmer and agricultural leader understand at least the minimum precautions that should be observed in the proper use and handling of pesticides.

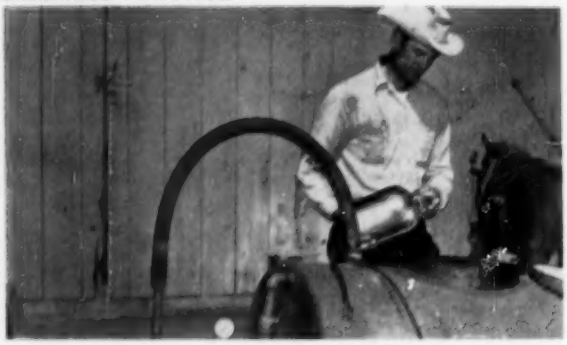
CARELESS PRACTICE

SAFETY PRACTICE



Store pesticides out of reach of children, or irresponsible persons, preferably in a room, drawer, or cupboard that is locked. Pesticides should also be kept in their original, properly labeled containers and away from human food, animal feedstuffs, or medications of any kind.

CARELESS PRACTICE



SAFETY PRACTICE

Users should read label precautions before using any pesticide product. Any farm person who has others working under him or with him should insist that each of them learn all the precautions concerning any particular pesticide product. Never give a neighbor or anyone else a portion of a pesticide in an unlabeled container, and make sure that you and the people working with you know what to do in case of accident—what symptoms will likely appear.

Definition of Pesticide

First, what is a pesticide? A pesticide is a substance or mixture of substances that may be used to destroy or otherwise control or regulate any form of pest, plant or animal life. Among the many types of pesticides are:

1. An **insecticide,** used against insects and their near relative;
2. A **fungicide,** used against fungi, particularly those causing disease of plants;
3. A **herbicide,** used against plants growing as weeds;
4. A **rodenticide,** used against rodents, especially rats and mice; and
5. An **auxin or hormone**—a chemical substance used to regulate plant growth or to kill plants.

Because the very purpose and nature of pesticides is to kill or control various forms of life, it is obvious that pesticides contain elements of poison. The essential thing is to so keep and use pesticides that they will kill or injure only the forms of life they are specifically intended to kill or control, and not human beings, domestic animals, or valuable crops.

CARELESS PRACTICE

SAFETY PRACTICE

Burn all paper, cardboard, and bag containers when empty, and keep out of the smoke. Nonreturnable metal containers that have had potentially hazardous pesticides in them should be washed out clean immediately when empty, and buried or rendered useless by puncturing.

What Are the Causes of Accidents?

There are five main causes of accidents involving pesticides. All are preventable.

1. Leaving material exposed to children and irresponsible persons.
2. Failure to read and follow the rules for use found on each container of any pesticide.
3. Carelessness in the disposal or return of empty containers.
4. Careless use and application of pesticides.
5. Failure to observe personal hygiene when using and applying pesticides.

Basic Minimum Accident Prevention Precautions

Here are the basic rules of precaution and use that should be available to and known by every farm person who uses or intends to use pesticides.

Basic Minimum Safety Rule No. 1

(Accident Cause No. 1: Leaving material exposed to children and irresponsible persons.)

1. Store pesticides on a high shelf out of reach of children, or irresponsible persons, preferably in a room, drawer, or cupboard that is locked.
2. Never leave such materials where children can reach containers or knock them down.
3. Keep insecticides away from human food, animal feedstuffs, or medications of any kind.
4. Always keep pesticide materials in original, properly labeled containers.

Basic Minimum Safety Rule No. 2

(Accident Cause No. 2: Failure to read and follow the rules for use found on each container of any pesticide.)

1. All farm people should read label precautions before using any pesticide product. Any farm person who has others working under him or with him should insist that each of them learn all the precautions concerning any particular pesticide product.

2. All farm people working with or around pesticides should know what to do in case of accident—what symptoms will likely appear and how to readily treat each symptom.

3. Never give a neighbor or anyone else a portion of a pesticide in an unlabeled container.

Basic Minimum Safety Rule No. 3

(Accident Cause No. 3: Carelessness in the disposal or return of empty containers.)

1. Burn all paper, cardboard and bag containers when empty, and keep out of the smoke.

2. A nonreturnable metal container that has had potentially hazardous pesticides in it should be washed out clean immediately when empty, and buried or rendered useless by puncturing after thorough washing.

3. Handle returnable containers in accordance with the manufacturer's instructions.

CARELESS PRACTICE

SAFETY PRACTICE

Careless use of pesticides can cause injury. Be sure to use the correct product and under conditions where it will not affect animal or plant life for which it is not intended. Never use the same sprayer to spray crops that has been used to spray weeds with a 2,4-D or 2,4,5-T weed killer.

Basic Minimum Safety Rule No. 4

(Accident Cause No. 4: Careless use and application of pesticides.)

1. Careless use of pesticides can cause injury to valued animals—be sure to use the correct product and under conditions where it will not affect animal or plant life for which it is not intended.

2. Never use the same sprayer to spray crops that has been used to spray weeds with a 2,4-D or 2,4,5-T weed killer. Minute traces can damage or kill valuable plants and crops.

Basic Minimum Safety Rule No. 5

(Accident Cause No. 5: Failure to observe personal hygiene when using and applying pesticides.)

1. Wash hands and face after spraying or dusting and before eating, and bathe or shower after work.

2. Avoid inhalation of spray or dust. Use a mask where recommended. Do not smoke or chew while spraying or dusting.

3. Be careful not to spill pesticides on the skin or clothing. If this happens, wash immediately and thoroughly to remove such contamination.

4. Wash clothing each day after use. Wear clean clothes each day.

CARELESS PRACTICE

SAFETY PRACTICE

Wash hands and face after spraying or dusting and before eating, and bathe or shower after work. Avoid inhalation of spray or dust and use a mask where recommended. Do not smoke or chew while spraying or dusting. If pesticides are spilled on the skin or clothing, wash immediately and thoroughly to remove such contamination.

IN CASE OF EMERGENCY

1. CALL YOUR PHYSICIAN IMMEDIATELY and give him full details, including identifying the poison from the container.
2. Use the facilities of your local Emergency Hospital where time permits.
3. EMERGENCY PHONE NUMBERS FOR MEDICAL INFORMATION: The U. S. Public Health Service has authorized referral of emergency and other medical questions on the diagnosis and treatment of poisonings by pesticides to the following two authorities. The person calling, should, of course, be the Medical Doctor or Hospital.

DR. WAYLAND J. HAYES, JR.—Savannah, Georgia
Home phone 2-7618. Office phone 3-7741.

DR. GRIFFITH E. QUINBY—Wenatchee, Washington
Phone NOrmandy 2-5506.

(Have your local hospital and medical doctor write U. S. Public Health at Savannah, Georgia, for a copy of their publication, "Chemical Memorandum on Economic Poisons," and make certain it is on ready reference file in the emergency ward or medical doctor's office.)

Mixing and Spraying Pesticides on the Farm

Types of Pesticide Formulations

There are five general types of pesticide formulations: Dusts, wettable powders, emulsions, solutions, and aerosols. Avoid spillage or inhalation of all concentrates.

Dusts are applied in hand dusters or power-driven devices. They are usually ready-to-use upon purchase.

Wettable powders are pesticide materials manufactured into powders that can be readily mixed with water.

Emulsions are pesticide materials manufactured into liquid concentrates so formulated that they will form an emulsion when mixed with water or another liquid.

Solutions are fog spray type concentrates.

Aerosols are of the liquefied gas type or smoke.

Basic Minimum Precautions
Mix Pesticides Carefully

Most of the water-diluted pesticide sprays will be mixed on the farm. Follow these safety rules.

1. Avoid spillage on the operator or any other person, particularly when measuring or dumping concentrated poisons.
2. Use proper amounts of the pesticide recommended by the manufacturer.
3. Mix thoroughly according to directions.
4. Use an agitator in your sprayer.
5. Mix carefully, don't slop, let splash up or blow on the operator.
6. Use what pesticide has been mixed, don't let it stand in solution in unmarked containers.

Observe These Spraying Rules

Spraying can be hazardous to man, animal, and crop unless at least these minimum precautions and rules are observed:

1. Watch the direction of the wind.
2. Use the correct nozzle on the sprayer.
3. Do not inhale the spray mist or work in the mist.
4. Use only the recommended amounts of spray on plants and animals.
5. Look out for the safety of other workers in the fields.

Protective Clothing—
How and When to Use It

See the label directions on the product for instructions on masks and appropriate protective clothing. Wash regular clothing daily and protective clothing as prescribed.

REMEMBER THIS:

The danger always exists that a person may exercise great care when first using a pesticide and, experiencing no ill effect, may become more and more careless.

Be on constant guard against this sense of false security. **Learn, observe,** and **practice** safety precautions at all times, in all places, and with all pesticides. Teach others to practice safety too.

In Summary:

Encourage special safety-in-use discussions with farm workers. Make certain they, and you, understand and follow at least the basic minimum safety rules repeated for emphasis as follows:

Use strictly in accordance with the label cautions, warnings and directions.

Keep all materials away from children, irresponsible persons and domestic animals.

Always keep chemicals in their original properly labeled containers. Never pour a poison into a wine jug, can or container other than the original.

Dispose of empty container safely. Promptly burn empty paper and cardboard containers, and bags, and stay out of smoke. For nonreturnable liquid metal containers, immediately wash inside and outside thoroughly and render useless by puncturing—then bury if possible. For returnable containers, seal tightly and wash outside thoroughly immediately after use.

Observe rules of personal hygiene.

Think Safety, Teach Safety, and **Practice Safety.**

This educational insert is furnished through the courtesy of
CALIFORNIA SPRAY-CHEMICAL CORPORATION.
EXECUTIVE OFFICES: Richmond, California. Washington, D.C.
Portland, Oregon—Sacramento, California—San Jose, California—Fresno, California—Whittier, California—Caldwell, Idaho—Maryland Heights, Missouri—Maumee, Ohio—Linden, New Jersey—Medina, New York—Memphis, Tennessee—Shreveport, Louisiana—Orlando, Florida—Goldsboro, North Carolina.
EUROPE: California Spray-Chemical Compagnie, Francaise, S.A.R.L. 33 Avenue Des Champs Elysees, Paris 8, France
MEXICO: Insecticidas Ortho, S.A., Mexico, D. F.
CANADA: Ortho Agricultural Chemicals Limited Marine Building, 355 Burrard Street Vancouver 1, B. C., Canada.
Representatives in the principal cities of the world.
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World leader in agricultural and garden chemicals
ORTHO®
SCIENTIFIC PEST CONTROL
REG. U.S. PAT. OFF.

Antibiotics–Good Fungicides!

By Carl E. Seliskar
Colorado A & M College

● THE SUCCESSFUL USE of antibiotics in the control of fire blight reported in 1954 has been confirmed in nationwide tests published in 1955. Some experiment stations have officially recommended their use while others are still conducting tests on a field scale.

Carl Seliskar

Tests conducted in Colorado for the control of fire blight on Jonathan apple in 1955 have shown that three applications of streptomycin at 50 ppm. during the blossom period is adequate for an average fire blight year. In these tests a 95 percent reduction in blighted spurs was observed.

The U. S. Department of Agriculture reports very effective control of this disease with streptomycin sprays on the highly susceptible Forelle pear in Oregon. Equal results were obtained with streptomycin sulfate, streptomycin nitrate, and a streptomycin-terramycin mixture.

Antibiotic Costs Down

Streptomycin sprays are truly interesting from the standpoint of plant disease control, but just as noteworthy is the reduction in cost of these materials over the past two years. One USDA researcher reports that in 1954 streptomycin cost $4.50 per 100 gallons of spray at 50 ppm.

The price in 1955 was $3.60, and it has been advised that bulk lots will soon be available at $2.50 per 100 gallons. It can be supposed that with production refinements, still further reductions in cost will be possible.

Cycloheximide Is New

Another antibiotic to receive attention on a field basis is cycloheximide (Actidione), a material effective in extremely low concentrations. Its use in the control of cherry leaf spot is well known. Under New York conditions it was found that a combination of Actidione (2 ppm.) and sulfur (2-5 lbs.—100) afforded outstanding control of both leaf spot and powdery mildew of cherry nursery stock with four applications at two week intervals.

The Pennsylvania Agricultural Experiment Station reports that the use of Actidione may be of value in the control of the serious oak wilt disease. Laboratory tests have shown extreme toxicity to the fungus organism, and its use under field conditions is suggested.

The Ottawa Laboratory of the Canadian Department of Agriculture recently reported that Actidione was the most effective antibiotic tried in the control of wheat rust, caused by *Puccinia graminis tritici*, under controlled greenhouse conditions. In field trials it was found that sprayed plots consistently outyielded and produced more viable seed than non-sprayed checks when used at 25 ppm. or above.

Other New Antibiotics

A new antifungal antibiotic, Candicidin, is reported by workers at the University of California to be effective as a dip treatment for the control of brown rot in peach fruit. Fruits dipped in 1:16,666 Candicidin for one-half hour and later inoculated were found to be protected for long storage periods, while standard fungicides were completely ineffective.

University of Illinois researchers have recently announced the discovery of a new antibiotic, Filipin, which also has marked antifungal properties.

Some synthetic antibiotic materials are showing promise in laboratory experiments. These materials, pyrimidinethione compounds, are interesting because of their broad-spectrum inhibition of bacterial plant organisms. In addition, they also appear to be antifungal. Work at Colorado A & M College has shown them to be very effective in the inhibition of certain fungus organisms, notably *Fusarium solani*, in low concentrations.

Combinations Give Results

Interesting results have been obtained when antibiotics were used in combination with standard fungicides. Thus, while commercial control of bacterial spot of pepper was obtained with either streptomycin or neutral copper sprays, Florida Agricultural Experiment Station workers found

HEPTACHLOR

America's most versatile soil insecticide

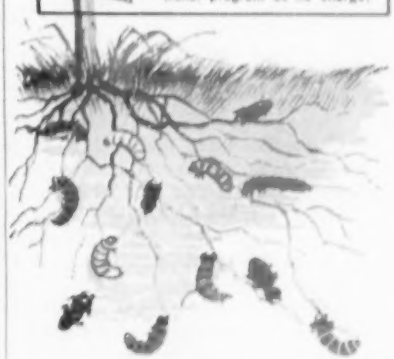
In sprays, dusts, fertilizer mixtures or in granular formulations... Heptachlor brings effective *soil insect* control to farmers of your area. Corn rootworms ... wireworms ...seed corn maggots ... cutworms ... white grubs and many others yield to the sure killing power of this outstanding, proven insecticide.

Safe, easy to apply...with no harmful residues or after effects when applied as directed...a single application provides effective control for a *full season*.

More and more farmers are turning to the truly *versatile* Heptachlor to kill the soil insects that kill their crops. In addition, Heptachlor also controls Forage insects, Soil insects, Cotton insects, Vegetable insects, Grasshoppers, Seed insects, Mosquitoes, and Citrus insects.

FREE—New Educational Booklet on Soil Insects

Pictures and describes 12 most destructive soil insects ...how to detect them... what to do. Send for sample. Available for distribution as part of your farmer educational program at no charge!



VELSICOL CHEMICAL CORPORATION

330 E. GRAND AVENUE CHICAGO 11, ILLINOIS

REPRESENTATIVES IN PRINCIPAL CITIES

that when the two materials were mixed (copper at 2-4 lbs. and Streptomycin at 100-200 ppm.) a marked additive effect was observed.

Another station reports a similar effect with the use of an Agrimycin-copper combination in the control of downy mildew of cucurbits.

Combinations Prove Best

In many plant disease problems control is often complicated by the presence of more than one disease. In such cases two or more fungicides may be required for effective control, resulting in considerable cost to the grower. Attempts are being made, therefore, to develop materials with broad application or to prepare fungicidal mixtures for dual purposes.

One USDA researcher, for example, has found that the control of both downy mildew and angular leaf spot diseases of cucumber can be accomplished with tank mixtures of a fixed copper and a dithiocarbanate. In fact, the mixture (3:2:100 Tribasic copper sulfate and Dithane Z-78) gave better control than when these materials were applied alternately.

Courage consists of hanging on one minute longer.

Control Potato Scab

A new fungicide of outstanding merit is pentachloronitrobenzene (PCNB, Terrachlor), a material receiving attention on a broad scale during the past year. Its value appears to lie primarily in the control of soil borne diseases, for years a stumbling block to plant pathologists.

Thus, potato scab, a notoriously difficult disease to control, is reported by the USDA as responding to treatment with this new material. In these tests Terrachlor was used as a 75 percent wettable powder, diluted with sand, and added to the row where it was mixed with the surface soil at the time of planting. Exceptional results were obtained at the rate of 150 lbs. per acre.

Cooperative work between the USDA and the Florida Agricultural Experiment Station indicates that Rhizoctonia root rot of snap beans may be controlled with Terrachlor when applied as a drench or spray at the time of planting. When applied at 5 to 10 lbs. per acre in water suspension, effective control was obtained in various soil types under field conditions.

A material with a promising future is sodium methyldithiocarbamate dihydrate (Vapam), a new soil fumigant. In the presence of moisture Vapam decomposes to form volatile end products which possess striking biological activity against soil-borne fungi, bacteria, and nematodes.

One of the old standard mildew fungicides, wettable sulfur, is receiving competition these days. USDA researchers report results essentially equal to wettable sulfur in the control of apple powdery mildew in eastern orchards with dinitro phenyl crotonate (Karathane 3/5:100). Its advantages over sulfur include greater ease in handling and less phytotoxicity.

Use Ammonia Gas

The use of ammonia gas to control blue-green mold in stored citrus fruits has shown promise in tests conducted at the University of California. It was found that ammonia injections to fruit in non-sealed containers provided excellent control with no apparent injury or off-flavor. Moreover, similar control was obtained even when the fruits were inoculated two days prior to the first injection and stored under conditions optimum for disease development.

Control of common stinking smut of winter wheat in both seed-borne and soil-borne phases has been reported by USDA scientists in the northwest. Hexachlorobenzene (Anticarie, Sanocide), when applied at the rate of 2-4 oz. per bushel of seed with a methyl cellulose sticker gave excellent control of this disease. The standard mercurials were completely ineffective in these tests.

Outstanding results were also obtained in the 1955 seed treatment tests conducted at Colorado A & M College when this material was used as a slurry at the rate of 1 lb. per gallon of water. It was significantly superior to mercurials and other non-mercurials.

"Marry me, Mary Anne, and let me take you away from all this!"

Here is a picture of the Alabama county agents who attended the NACAA meeting at Lansing, Mich., last September. Front row (l-r): B. R. Holstun, immediate past president, Alabama Association of County Agricultural Agents; H. J. Carter, vice president; J. E. Morris, past president and past director of the national association; D. S. Loyd, president, Alabama Association. Back row: Carl Parker, Member National Youth Committee; and L. T. Wagon, past president.

Encouraging results are reported for the control of loose smut of oats. The USDA reports that five of fourteen materials used in 1955 tests completely eliminated loose smut from infected seed. These included Panogen, Panogen 42 and PA-2N (an insoluble mercurial) applied as liquids, and Ceresan M and Ceresan M2x applied as slurries. Essentially similar results have been reported by five experiment stations in the East, Midwest and Northwest.

Experiment station workers in Nebraska, Colorado, and Maryland experienced excellent results in the control of covered kernel smut of sorghum with seed treatment. Smut was eliminated from a variety that threshes free of its glumes and a high degree of control in a variety that retains its glumes was obtained with a number of standard seed-treatment materials.

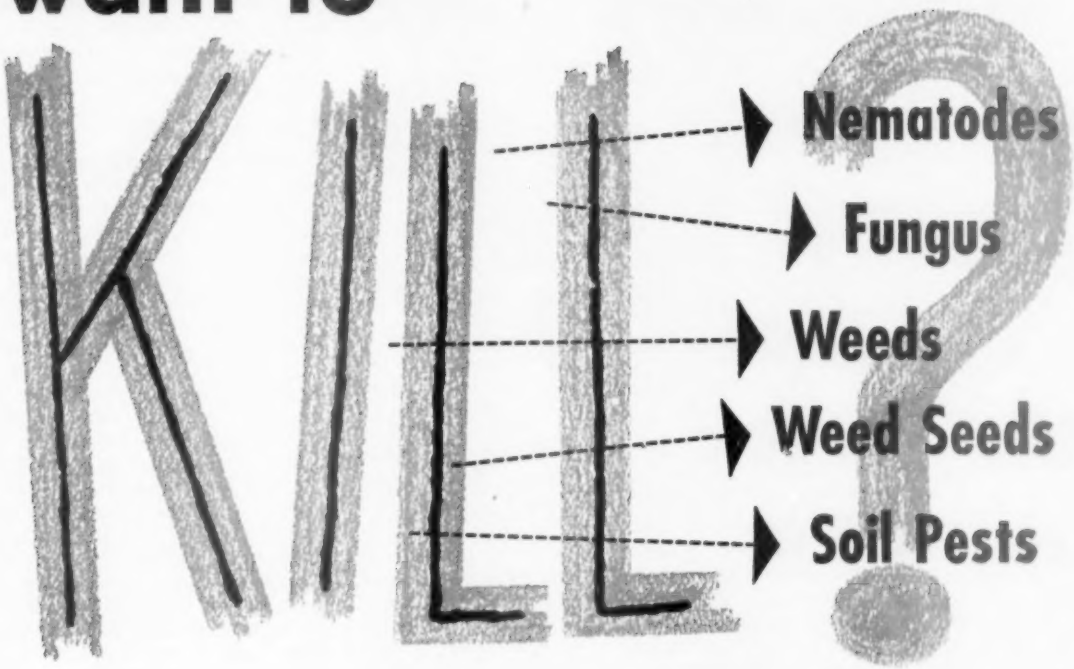
Control Snow Mold

Work performed in Colorado during the 1954-55 season indicates that Ceresan M2x was highly successful in the control of snow mold of wheat. Sprays were applied to the growing plants before the first snowfall at the rate of 2½ lbs. per acre.

Only a portion of the outstanding results obtained in the 1955 disease control tests have been reported here. However, this brief summary is sufficient to indicate the truly remarkable changes taking place in the development of new and more effective fungicides.

Indeed, we are witnessing a prelude to a whole new era of fungicidal control.—*End*

want to



in ONE easy application
STAUFFER VAPAM kills them all!

• Water the soil, introduce Stauffer VAPAM directly into irrigation system (no special equipment necessary), soak it in.

• Stauffer VAPAM generates a powerful fumigant within the soil... kills *all* soil-living profit robbers.

• In 2 to 3 weeks Stauffer VAPAM has escaped from the soil and you plant!

Stauffer's VAPAM 4S – made by the manufacturer of CAPTAN – is a temporary soil sterilant containing 4 pounds of VAPAM per gallon. Already sold and used with huge success in several states, it is now available nationally.

Stauffer's VAPAM is a temporary soil sterilant which kills all soil pests with one easy application. You require no special equipment . . . you need no ground-coverings . . . **you can treat acres in a day.**

After Vapam soil treatment, your transplant seed beds are free of weeds, nematodes, insects and disease, and produce spectacular results in sturdy well-rooted plants which thrive under field conditions. The complete restoration of weedy or diseased lawns without disturbing the turf surface is a particularly interesting use of Stauffer Vapam 4S.

Use coupon below to request Stauffer literature.

Stauffer CHEMICALS SINCE 1885

STAUFFER CHEMICAL COMPANY
380 Madison Avenue, New York City or 636 California Street, San Francisco, Calif.

I would like to receive literature on Stauffer Vapam 4S treatment for:

( ) Transplant Seed Beds for Vegetables
( ) Seed bed and field use for ornamentals
( ) Lawn planting or restoration

Name: _____

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Please indicate your agricultural interests on line above. We may have other literature of value to you. BFM-156

Kill Weeds for More Profits

By W. G. Westmoreland
North Carolina State College

● HAVE YOU GOTTEN that problem weed identified? To know your weed is still important. Newer chemicals show more evidence of greater **selectivity.**

W. G. Westmoreland

That weedy plant may be almost like the one your neighbor is controlling chemically, but "almost" is not close enough. And just because they both have round leaves and yellow flowers does not make them the same either. Even if you expect to control your weed by tillage, you will do a better job if you identify it and learn its habits.

Weedy plants across the United States are costing almost five billion dollars each year. Any change in weed control measures—mechanical, chemical, or otherwise—that will free labor from present hand tasks or exchange present methods for cheaper, quicker, or more thorough methods, can aid in reducing this cost. This may reduce production costs enough for an enterprise to continue profitably in spite of the cost-price squeeze.

Are you telling your farmers to take advantage of developments incorporated in new cultivating equipment and chemicals?

Chemicals Control Grass

"Dalapon," a Dow Chemical Company product, has done a good job during the past year. It translocates in grass and gives reasonably good control of perennials like Bermuda grass, Johnson grass, and quackgrass. The chemical dissolved in water at a rate suggested by the manufacturer and used as a wetting spray, results in a good kill after about four to six weeks.

Where rainfall and temperature are satisfactory for good early season growth of these grasses, the chemical has usually disappeared from the soil by the time the grasses are out of the way. It appears that a thorough disking two to three weeks after chemical application still allows for sufficient translocation for effectiveness and permits very little sprouting.

The same chemical gives very good control of cattail *(Typha Spp.)* where 20 pounds is dissolved in 100 gallons of water and this solution used as a wetting spray. The treatment is best applied just before blooming. Again the chemical acts slowly and retreatment will be necessary for eradication.

Indications are that the chemical is less expensive to use, sterilizes soil for a shorter time, and is generally less corrosive than materials such as sodium TCA and sodium chlorate commonly used to control these perennial plants. Repeat treatments increase the percentage control with "Dalapon."

"Amino Triazol," a product of American Chemical Paint Company and American Cyanamid Company, has been used satisfactorily during the past 12 months. Trials are still underway with this material as a defoliant and growth inhibitor. When it is added to some defoliant materials, it increases effectiveness and delays regrowth. The first regrowth has little or no green chlorophyll which greatly aids in mechanical harvesting.

Under southeastern United States conditions "Amino Triazol" does a very good control job on poison oak and poison ivy. The chemical seldom causes the foliage to "whiten" but brings about a slow and thorough control. To give an idea of the wide range of possibilities for "Amino Triazol," it is being considered for marking jobs where white lines are needed on grass such as turfed tennis courts and football fields.

CDEC and CDAA

Results on a second year's research with new herbicides developed by Monsanto Chemical Company continue to look promising. In North Carolina, CDEC 2-chloroallyl diethyldithiocarbamate) gave good preemergence weed control in corn at six pounds and nine pounds per acre. CDEC and CDAA (a-chloro-N-N-diallylacetamide) produced good weed control in Redbine 66 grain sorghum.

As is the case with practically all pre-emergence herbicides, these materials are affected by soil type, rainfall, and temperature. They appear to give better weed control on heavy clay soils although the possibility of leaching on light, sandy soil does not seem too serious. Both seem to be effective especially on germinating grasses with special note being made that they control giant foxtail *(Setaria faberii)*.

Caution should be exercised in using them. Rubber gloves, rubber pants, and perhaps eye goggles should be used to handle CDAA. Any spilled chemical should be immediately removed with soap and water since this material may be absorbed through the skin and is very irritating to the eyes.

How much cultivation does your crop need to produce its best? No one

1956 NACCA Officers

Here are the newly elected officers and directors of the National Association of County 4-H Club Agents for 1956. They are, (back row) l-r: Merle Eyestone, director, Topeka, Kans.; Ralph Kirch, director, Grand Rapids, Mich.; Mrs. Ella Kringlund, director, Elk River, Minn.; K. C. Festerling, second vice president, Petoskey, Mich.; Mrs. Elizabeth Roper, director, Conway, N. H.; and Peter Martens, director, New Brunswick, N. J. (Front row) l-r: Merle Cunningham, treasurer, Alton, N. Y.; Sarah Harmon, president, Parkersburg, W. Va.; Arlene Martin, secretary, Litchfield, Conn.; and R. J. Rensink, first vice president, Manitowoc, Wis.

actually knows, but new facts are being uncovered. Effective herbicides are available for some crops, and research is beginning to uncover some answers.

It is known that many things enter the picture on this question, such as root system of the crop plant, problem weeds, soil type, soil organic matter, fertility level, amount of rainfall, and others.

Work in North Carolina over a three-year period seems to indicate that, in corn production, only the best row crop soils with high organic matter, high soil fertility, and plenty of water need no cultivation. In practically all other soils, particularly those which develop a hard, thick surface crust early in the season, one thorough shallow cultivation increased yields and produced better looking corn.

Weeds Like Fertilizer, Too

No advantage was shown for two additional cultivations and weeds at harvest time were a problem.

The Massachusetts Agricultural Experiment Station recently published work which indicates that with high rates of fertilizer materials it does not seem possible to grow both weeds and a corn crop without sacrificing some corn yield.

With a different crop, the facts may be entirely different. But as new, effective herbicides are developed, more people are looking at their weed-free crops and wondering if it is necessary to "stir the soil."—*End*

★

Purina Offers Scholarships

Again, the Ralston Purina Company has announced its Research Fellowship Awards program for 1956-57. Through it, 10 outstanding agriculture college students will be able to do graduate work.

Selection of the 10 winning students will be made by a committee of five, composed of representatives from the Poultry Science Association, American Veterinary Medical Association, American Dairy Science Association, American Society of Animal Production, and the Association of Land Grant Colleges. Three Fellowships will be awarded in animal husbandry, dairy husbandry, poultry husbandry, and one in veterinary science. Each Fellowship amounts to $1560.

Application blanks and rules of the annual program are now being sent to agricultural colleges throughout the United States and Canada.

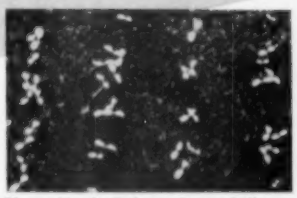
★

Praise, like gold and diamonds, owes its value to its scarcity.

WHAT YOU SHOULD KNOW ABOUT

PANOGEN

Liquid Seed Disinfectant



These North Dakota State College photos show Panogen treatment produced quicker emergence and better stands from same seeding rate. In this test, Panogen increased flax yields $9.10 per acre.

PANOGEN is a liquid seed disinfectant. Developed in Sweden in 1938, it became the first successful liquid fungicide to employ an organic mercury compound in true, stable solution.

It has proven remarkably effective in controlling seed and soil-borne fungus diseases of cereal grains, cotton, flax and certain other crops. Experiment stations also show that PANOGEN-treated seed germinates better, emerges sooner and produces higher yields. Today it is the *only* liquid seed disinfectant widely recommended by agricultural colleges.

PANOGEN's success is largely due to its active ingredient, *cyano (methylmercuri) guanidine,* an extremely potent member of the organic mercurial family. Being in liquid form, it applies readily and then releases vapors that penetrate deep under seed hulls to destroy disease organisms which products without "vapor action" can't reach. Fungicidal action is rapid . . . and because the mercury content is low, seed germination of properly treated seed is not adversely affected. Results are fast, effective and long lasting. PANOGEN-treated seed can be planted almost immediately or stored until the following season.

A sticking agent in liquid PANOGEN assures permanent application of the fungicide to the seed. A dye tints treated seed red to avoid accidentally using for feed. PANOGEN eliminates many of the principal disadvantages of previous treating methods . . . disagreeable dust, pre-mixing, freezing and fire hazards.

PANOGEN is used extensively and is recommended by leading agricultural authorities in such European countries as Sweden, France, Denmark, Norway, Switzerland, Germany etc., as well as in the United States and Canada.

An excellent film on the advantages of seed treatment and other teaching aids are available by writing Panogen, Inc., Box 101, Ringwood, Illinois (an affiliate of Morton Salt Co.).

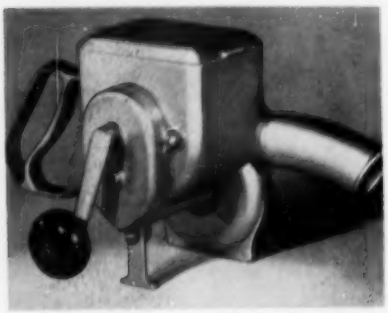
Panogen®

A PRODUCT OF PANOGEN, INC., RINGWOOD ILLINOIS

Helpful Booklets

AG CHEMICALS

131—Garden Duster



This compact duster throws an eight-foot fine dust stream with one turn of the handle. It weighs only one and one-fourth pounds, yet has great capacity. You'll find it very convenient for doing a great many small garden and lawn tasks. It is manufactured by D. B. Smith & Company, and further information on this piece of equipment is available by circling the appropriate number.

On the postal card
CIRCLE 131

132—Do It With Dithane

Dithane is an effective fungicide that controls fungus on a good many crops. You will find it useful in both orchards and gardens, plus a number of other uses in small and commercial projects. Available from Rohm & Haas Company, you will want copies of the booklets for your information and reference.

A—More Profits from Onions
B—Dithane M-22
C—Dithane for Apple Disease Control
D—Dithane—1 Controls 5

On the postal card
CIRCLE 132A, 132B, 132C, 132D

FARM BUILDINGS

133—All About Aluminum

From the Kaiser Aluminum and Chemical Sales, Inc., you can receive a county agent kit that will contain a great deal of valuable information for your reference and your use. Not only county agents, but all agricultural leaders will benefit from this material and find it of help in working with farm people. Be sure to include your request for this material on the postcard you are mailing today.

On the postal card
CIRCLE 133

All Booklets Listed in this section are

FREE!

These booklets are available from these individual companies and will be of help to you in your work of training and advising farm people.

FARM EQUIPMENT

135—The Junior Planetiller

Here is a two and one-fourth horsepower garden tiller manufactured by S. L. Allen & Company, Inc. It's a handy piece of equipment for small garden plots, and you may find it of interest yourself or for people who are looking for additional facts concerning this type of equipment.

On the postal card
CIRCLE 135

ORDER THIS INSERT!

Would you like copies of the educational insert printed on pages 29-32? If so, write number 152 on the postal card, then indicate also the number of copies you would like for classroom or club use.

134—Cage Layer House

All over the country now you are hearing about cage laying, the practice of keeping laying hens in wire cages. The Reynolds Farm Institute has a booklet on cage laying that may be of interest to you in answering questions, giving you ideas, and serving as a reference on this newer farm practice. Be sure to circle the appropriate number for a copy of this booklet today.

A—24′ x 160′ Cage Layer House
B—Individual Hog Farrowing House

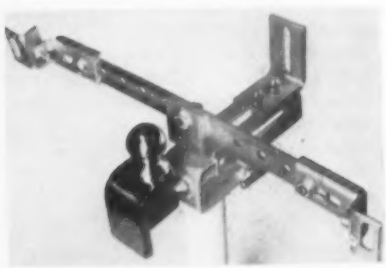
On the postal card
CIRCLE 134A, 134B

136—Infrared Heat

It will soon be brooding time, and here is a booklet "Infrared Heat on Your Farm for Brooding" that will be of interest to you. Issued by Sylvania Electric Products, Inc., it describes the use of infrared lamps in all types of brooding—chicks, pigs, lambs, calves, and other kinds of livestock. A special section deals with the use of lamps to handle various chores and emergencies. Certainly an informative booklet that you will want for reference purposes.

On the postal card
CIRCLE 136

137—A New Car Hitch



Specialty Engineering, Inc., has announced a new trailer hitch for passenger cars that retracts and locks out of the way under the car's bumper when not in use. Many agricultural leaders have use, either for themselves or their farm people, for such a hitch and complete information is available by circling the appropriate number on the postal card. Send for it today.

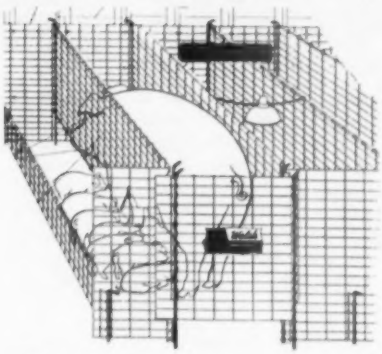
On the postal card
CIRCLE 137

139—What Owners Say

Allis-Chalmers Manufacturing Company says, "You ought to know what owners say about the All-Crop drill." And if you would like to know this, they have a very informative pamphlet available to you that gives you this information and other pertinent facts about this piece of farm machinery. You may be interested in it, and certainly your farm people will. Circle the appropriate number today.

On the postal card
CIRCLE 139

138—New Farrowing Stall



This all-steel multiple unit farrowing stall, made by Walsh Manufacturing Company, will help save additional pigs on the farm. It can be erected in any hog house in less than half an hour. Heavy-duty, simple installation, and taking very little storage space, this pen will find ready acceptance on many farms. Be sure to send for more information concerning it today.

On the postal card
CIRCLE 138

FARM MACHINERY

140—The New "400"

A very illustrative and colorful booklet has been prepared by the J. I. Case Company telling people about the new series of "400" tractors that Case has recently introduced. It gives full information about this equipment, plus many facts, figures, and photographs showing actual field working conditions. Send for your copy today.

On the postal card
CIRCLE 140

141—A Versatile Tractor

International Harvester Company would like to send to you a folder describing their new "300" utility tractor. This tractor has many applications on the average farm, from field work to odd jobs around the farm. A complete line of equipment is available for this tractor, and full information is yours by requesting additional information on the postal card.

On the postal card
CIRCLE 141

142—Helpful Charts

Charts are always useful in explaining things to young and adult farmers. Here are two charts available from Mayrath Company that will help you solve questions and give you answers concerning problems on the farm. You may wish to have a copy for reference and teaching use.

A—How to Tell What Size Elevator You Need
B—Pulley Chart

On the postal card
CIRCLE 142A, 142B

FERTILIZER

143—Solutions of Nitrogen

A growing practice among progressive farmers is the use of nitrogen solutions as fertilizer. A booklet from the Nitrogen Division, Allied Chemical & Dye Corporation, entitled "Nitrogen Solutions for Direct Applications to the Soil" is available for your help and guidance. Complete information on this type of fertilizer practice is yours for the asking.

On the postal card
CIRCLE 143

144—Gypsum Has Uses

Muddy ponds can be a problem. But agricultural gypsum will help clear up this condition. A booklet from the U. S. Gypsum Company gives full information on this practice and tells how you can use it successfully in helping your farm people. Circle the appropriate number today.

On the postal card
CIRCLE 144

TEACHING AIDS

145—Midget Incubator

Sometimes you want to illustrate or demonstrate various things in agriculture. For the hatching and brooding of chicks, here is a small incubator that may prove of interest and teach a lesson to young people. Boys and girls can see the incubation, hatching, and then the small incubator can be used for a room brooder. J. P. Glasby Manufacturing Company has more information available on this equipment. Circle the appropriate number today.

On the postal card
CIRCLE 145

146—All About Leathercraft

4-H boys and girls, FFA members, and perhaps others will be interested in a book on leathercraft available from J. C. Larson Company. Their complete line of products, plus aids and information on the work of leathercraft is available in this catalog. Send for your copy today.

On the postal card
CIRCLE 146

PLEASE INCLUDE . . .
. . . your full name and address on the postal card you are mailing today.

147—LP Gas

Here is a new 24-page illustrated booklet published by the LP Gas Information Service. It has special interest to people in rural areas for it tells how LP gas is produced, delivered, stored, and used in the home and on the farm. A copy of the booklet "LP Gas—Modern Fuel for Millions" is yours by circling the appropriate number.

On the postal card
CIRCLE 147

148—Wood for Buildings

A booklet entitled "Economical Farm Buildings" is yours from the West Coast Lumbermen's Association by merely circling the appropriate number on the postal card. Contained therein will be much valuable information for your use in teaching and advising farm people. A ready reference that you will want to have in your miscellaneous folder.

On the postal card
CIRCLE 148

149—Teaching With Pictures

The Ampro Corporation has information on "Teaching With 16 mm. Motion Picture Projectors" that will be of interest and help to you. With increased use of visual aids, ag leaders will want to know as much as possible on their use to give maximum results in the classroom.

On the postal card
CIRCLE 149

150—Projection Data

You have failed before this to ask for and receive the projection data card made available to you from Da-Lite Screen Company, Inc. Be sure to circle the appropriate number and send it along today. This will help you in getting the best possible projection from slides, filmstrips, and motion pictures.

On the postal card
CIRCLE 150

151—A Visual Blueprint

From Victor Animatograph Corporation you can receive a "Blueprint for an Audio-Visual Program." This will be helpful to you in setting up one yourself, and taking advantage of the facts and figures they give you from their experience in the audio-visual field. Certainly with the use you make of visual aids, you will want this handy blueprint along with helpful information. Be sure to circle the appropriate number today.

On the postal card
CIRCLE 151

Review Cotton Defoliation

By Wesley Chaffin
Oklahoma A & M College

● THE RAPID INCREASE in mechanical harvesting of cotton is perhaps the most significant change in the history of cotton production in the South.

Along with this move toward complete mechanization of cotton production has been the introduction and successful use of defoliating and drying chemicals that condition the crop for earlier and better harvesting.

Chemical treatment of cotton prior to harvest hastens the opening of mature bolls and makes possible an earlier harvest of the crop. This often means better grades with a higher market value. In humid areas and on irrigated land, defoliation reduces rotting of the lower bolls, particularly in rank cotton.

May Help Reduce Insects

Removal of leaves and drying of bolls increases the efficiency of mechanical harvesters including both strippers and pickers. Where stripper harvesters are used before frost, the practice is considered a necessity.

Removal of leaves or the drying plants often aids in reducing late populations of harmful insects, such as the boll weevil and pink bollworm.

Defoliation of cotton has been most profitable in seasons when conditions were favorable for plant growth. This may account in part for the large increase in the use of chemicals as a pre-harvest treatment on the 1955 season. Less favorable results have been obtained in dry seasons when plant growth was limited and in areas where the growth season is relatively short.

Defoliants and Desiccants

Chemicals for pre-harvest treatment of cotton are of two types: Defoliants and desiccants. A true defoliant removes the leaves but does not kill the plants. A desiccant kills and drys the plants but may remove only a small portion of the leaves.

The question of whether a defoliant or a desiccant would be better on a particular farm is determined largely by the type of cotton grown and the method of harvesting employed. Defoliants are preferred on high-yielding cotton where the plants are large and the crop is set and matured over a considerable period of time.

Cotton of this type is usually harvested with a mechanical picker or by hand. The desiccants are more useful on the smaller, storm-proof, determinate growth types where it is desirable to harvest the entire crop with a stripper in one operation.

Improve Spray Equipment

The principal advances in pre-harvest treatment of cotton during the past year have been in the improvement of spray equipment and operating technique. Additional information was also obtained on the performance and adaptation of several defoliants already in limited use, but only a few new formulations were included in the testing program.

High clearance ground machines with better shielding have reduced the damage to cotton plants. A single flooding-type nozzle mounted directly over the rows was demonstrated with excellent results at Stoneville, Miss. The operators of aerial equipment have also improved their efficiency by better timing of the application and more thorough coverage of the cotton plants.

Calcium cyanamide is still one of the most widely used chemicals for pre-harvest treatment of cotton. It is an excellent defoliant, especially for rank cotton with dense foliage. Since calcium cyanamide is applied in dust form, a dew or mist is necessary for its activation.

Chlorates Give Results

The chlorates and chlorate-borates have given excellent results in the southeast, particularly in the Mississippi Delta. Good results have also been obtained in Oklahoma and Texas with most of these formulations. The magnesium chlorates fortified with amino triazole have been very effective in Texas.

The performance of sodium ethyl xanthate (SEX) in 1954 was similar to that of 1953. In Mississippi it removed 85 to 90 percent of the leaves. A leaf drop of 95 percent was obtained with the addition of amino triazole.

In Texas SEX has given good results in localized areas, but it does not seem to have the wide range of adaptation found in some other defoliants. Amino triazole in combination with SEX has increased both its effectiveness and the consistency of results. Sodium ethyl xanthate has given only fair results in Oklahoma.

Endothal Is Good

Endothal is widely used and is still regarded as one of the best defoliants in low rainfall areas where cotton is usually grown under conditions of limited moisture. Endothal gave a higher percentage of leaf drop than any other defoliant tested in Oklahoma in 1954. The rate of leaf removal was increased with the addition of amino triazole.

Endothal was also very effective in Texas, especially on drought-stressed cotton. A mixture of endothal and amino triazole has been outstanding in that state. Less favorable results, however, were obtained in the Mississippi Delta and certain other areas in the Southeast.

Amino Triazole Effective

Among the new defoliants, amino triazole continues to hold the limelight of interest. It is now regarded as the most effective defoliant for controlling regrowth.

The Texas Experiment Station reports that amino triazole is one of the most promising defoliants and growth inhibitors tested to date. When mixed with other defoliants it has increased their effectiveness in leaf drop and has suppressed regrowth. These results have been obtained under conditions varying from irrigated cotton on bottom lands of the Lower Rio Grande Valley to dry land cotton on the High Plains.

Similar results were obtained in the Mississippi Delta where combinations of 0.5 to 1.0 pound of amino triazole plus half the usual rates of defoliants were as good as the defoliants used alone at recommended rates. In addition, the combinations had the effec-

YIELD— BOOSTERS

...all these CYANAMID products help boost yields and profits!

FOR INSECT CONTROL

MALATHION Insecticides . . . combine low animal toxicity with high insect toxicity. Control mites, aphids and many other insects on fruit, vegetable and field crops, ornamentals. Malathion is the preferred insecticide for control of flies—even those resistant to DDT. Malathion controls poultry mites, too.

THIOPHOS® Parathion Insecticides . . . for broad, low-cost protection against more than 100 different insects, on more than 50 different crops.

CYANOGAS® G-Fumigant for farm-stored grain . . . most effective, most economical, easiest way to safeguard farm-stored grain against insect damage, grade loss. A *dry* fumigant applied automatically as grain is being stored by auger or loader.

FOR WEED CONTROL

AMINO TRIAZOLE . . . for control of such troublesome weeds as Canada thistle, sow thistle, poison ivy, poison oak, quack grass, nut grass, equisetum, phragmites, certain woody species.

AERO® Cyanate, Weedkiller . . . selective, contact herbicide for killing weeds in onions and other crops.

RODENT CONTROL

CYANOGAS® A-Dust . . . all-around pest killer for farm and garden. Kills ants, rats and other pests right in their nests or burrows.

DEFOLIATION

AERO® Cyanamid, Special Grade . . . for defoliation of cotton, soybeans, tomatoes and other crops, as well as killing potato tops to permit earlier, better harvests. Also used as a selective weedkiller in small grains, peas and other crops.

AMINO TRIAZOLE . . . for defoliation and regrowth control of cotton.

FERTILIZATION

AEROPRILLS® Fertilizer Grade Ammonium Nitrate . . . contains 33.5% nitrogen, half in quickly available nitrate form and half in more slowly available ammonia form.

AERO® Ammonium Sulphate . . . a 21% nitrogen, free-flowing material, for manufacturing mixed fertilizers and for direct application.

AMANOL® Nitrogen Solutions . . . low-cost source of nitrogen for direct application to the soil. Available in varying proportions of anhydrous ammonia and ammonium nitrate to fit specific requirements.

FERTILIZATION, WEED CONTROL, DISEASE CONTROL

AERO® Cyanamid, Granular . . . for weed control in tobacco plant beds; for disease (sclerotiniose) control in certain vegetable crops. Ideal for direct application, and to plow down with cover crops and stubble to make humus. 21% nitrogen.

WRITE FOR DESCRIPTIVE LITERATURE

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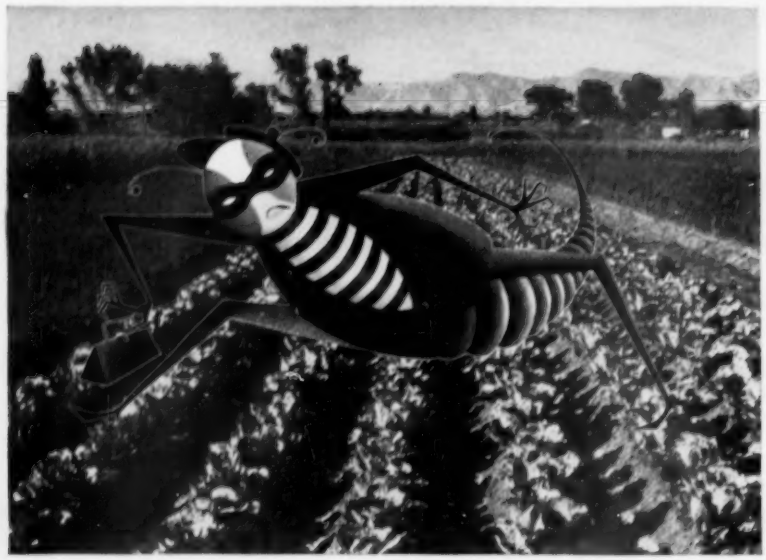

How Niagara Helps You Win The Game of

Crops and Robbers

Give your row crop acres the best of protection with these exclusive NIAGARA formulations. Enjoy better yields. Always available fresh and in full toxic strength. See your local NIAGARA field man.

C-O-C-S FUNGICIDE

This natural copper fungicide is the old favorite dust or spray material for thousands of growers. Effectively controls blight, mildew, leaf spot.

NABAM SOLUTION

An organic liquid, compatible with most insecticidal sprays. Controls many diseases, particularly early and late blight on potatoes, tomatoes, celery.

CHLORO IPC WEED KILLER

A pre-emergence weed control material for snap and lima beans, lettuce, peas, onions, spinach and others. Post-emergence on onions, also.

PYRENONE DUST

A relatively non-toxic insecticide for application to vegetable crops where the use of materials such as DDT is not permitted.

CHLORDANE DUST OR SPRAY

One of the most effective insecticides known. Controls cutworms, wire worms, grasshoppers, maggots, ear wigs, beetles, leaf miners and others.

SOILFUME

Apply 2 to 3 weeks before planting to rid the soil of pests such as nematodes and wire worms that attack vegetable root structures and restrict yields.

Niagara DUSTS and SPRAYS

Niagara Chemical Division

FOOD MACHINERY AND CHEMICAL CORPORATION

Middleport, N.Y., Richmond, Calif., Jacksonville, Fla., Tampa, Fla., Pompano, Fla., Wyoming, Ill., New Orleans, La., Ayer, Mass., Harlingen, Tex., Pecos, Tex., Yakima, Wash., Pine Bluff, Ark. *Canadian Associate:* NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario

WHEN YOU BUY Niagara YOU BUY PROTECTION

FMC *Trade Mark

"What're you going to be when you grow up?"

tiveness of amino triazole alone in retarding regrowth.

Reports from Arizona, Oklahoma, South Carolina and other states indicate that amino triazole has effectively controlled regrowth even under conditions conducive to heavy regrowth. In Oklahoma, an increased speed of leaf fall was noted when amino triazole was used with endothal. A limited quantity of amino triazole was available for use in the 1955 season.

Test Other Chemicals

Phillips 713D continues to look very promising in low rainfall areas where leaves are often tough and difficult to remove. It has considerable potential, both as a desiccant and as a defoliant. Phillips 713D has given excellent results in the stripper areas of Oklahoma and Texas.

Another experimental chemical, NP-1098, looked promising in the Southeast in 1954. In Texas, however, it was effective only when fortified with amino triazole.

Alphenol gave only fair leaf drop in Oklahoma in 1954, and permitted more regrowth than other chemicals included in the tests.

These Desiccants Work

The pentachlorophenol formulations are still recognized as the most effective desiccants where killing and rapid drying of the plants is desired. They are most useful for application on storm-proof and storm-resistant varieties after the plants and bolls are mature. Golden Harvest, a pentachlorophenol formulation, was one of the best desiccants tested in Oklahoma in 1954.

The results of research continue to show that some defoliants give good results over a wide range of conditions while others are more limited in adaption. Growers should obtain specific recommendations from au-

thoritative sources in their respective states.

Proper timing of the application is a very important factor in determining how much benefit growers will receive from the use of defoliants or desiccants. Defoliation can be done most effectively after the bolls are mature and vegetative growth has almost ceased, but with a high moisture content remaining in the stems and leaves. Fair, warm weather, with little or no wind is also essential for best results.

Defoliation of rapid fruiting varieties is usually delayed until 50 to 70 percent of the bolls are fully grown and firm. For varieties which have a longer fruiting period, it is best to delay application of the defoliant until more of the bolls are mature.

Apply Near Maturity

Desiccants should not be applied until at least 75 to 85 percent of the bolls are mature.

Application of defoliants and desiccants can be made with available machines—ground or air-borne—used in applying insecticides or herbicides.

Airplanes for applying defoliants are generally more satisfactory than ground machines, particularly in tall, rank cotton. Good coverage of medium to small-sized cotton plants can be made with ground machines by shielding the tractor and sprayer and by using at least five nozzles to each row. The U-shaped booms or boom drops between the rows will give more uniform coverage and make possible a better job of defoliation.

The reward of a job well done is to have done it.

Shield Tractor Wheels

Damage to cotton plants can be minimized by shielding the tractor wheels. Shielding the boom drops will prevent the leaves from coming in direct contact with the spray nozzles and thus make it possible to avoid breaking the spray pattern. The new high clearance machines equipped with single flooding-type nozzles mounted directly over the rows may also come into general use in the near future.

The use of adapted varieties, proper fertilization, effective insect control, chemical defoliation, and machine harvesting are all essential parts of the new program designed to reduce production costs and increase the profits for those who grow cotton.

—End

NEWS FROM NAUGATUCK

DURASET-20W
increases Lima Bean yield
80% to 100%

Discovered by our research teams, DURASET*-20W, a new flower and fruit-setting hormone, was cooperatively developed with many state and federal experiment stations.

1. Increases yield—insures first pick
2. Gives more uniform bean maturity
3. Allows a continuous planting schedule
4. Insures continuous harvesting operations
5. Is easy to use

Tests on tomatoes, strawberries, peppers, apples and small seeded legumes show promising results with Duraset.

Order DURASET-20W from your local supplier today. Write, wire or phone us if unable to locate source of supply.

*U. S. Patent No. 2,556,665

SEE—Naugatuck Chemical Division, United States Rubber Company, at work on NBC's "Color Spread" TV spectacular, Sunday, March 25, 7:30 PM, EST.

US RUBBER

United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

Chemicals Improve to Control More Insects

By Harold Gunderson
Iowa State College

● THE MOST IMPORTANT TOPIC of conversation when entomologists got together in 1955 was the Miller Amendment to the Food, Drug, and Cosmetic Act, that went into effect July 22, 1955.

Harold Gunderson

Manufacturers and formulators were applying for the establishment of tolerances for their products and were sending mail sacks full of evidence supporting their position. State colleges and experiment stations were checking their recommendations to make sure that no overdosing occurred.

In general, growers of fruits and vegetables seemed to be little concerned. Most of them carried out about the same program of insect control as in previous years.

Prescribe Safe Limits

As you know, the Miller Amendment establishes the procedure by which safe limits of insecticide residues that may be found on raw or processed agricultural commodities in interstate commerce may be set. This is in furtherance of the duties prescribed by Congress for the U.S. Food and Drug Administration.

At present, pesticide tolerances have been established only on fruits and vegetables. All agricultural leaders should be aware of these limits and should keep them in mind when making recommendations to growers.

The U. S. Food and Drug Administration has published a list of the crops and pesticides for which tolerances are now established. As tolerances are established for new or additional old chemicals, agricultural leaders will be informed through such publications as Better Farming Methods.

What's Ahead?

Will new insecticides continue to appear at a bewildering rate during 1956? I don't believe so.

For one thing, the cost of developing a new insecticide from synthesis through laboratory screening, field testing, label approval (USDA), determination of mammalian toxicity and/or establishment of a tolerance (FDA), to commercial availability is about $4,000,000. It would have to be a very spectacular insecticide to justify such an expenditure.

Of course, research will continue on all pesticides. New uses will be found for some. Others may be found to be effective at lower dosages than are now recommended. Still others may be found to disappear more rapidly from treated fruits, vegetables, and forage than now is believed. So you can't assume that your present knowledge is the last word.

List Recent Findings

Some recent findings include:

1. *Approval of liquid formulations of activated (synergized) pyrethrins as food and feed grain protectants.* Kansas State College pioneered in the development of grain protectant powders containing pyrethrins five or six years ago. They also led in developing liquid formulations.

The objective in using either powder or liquid is to apply about 1.5 parts of pyrethrins per million parts of grain. This dosage protects the grain against infestation by contaminating insects and is effective for more than one year in storage.

Liquid formulations may employ a fumigant or water as the carrier of the synergized pyrethrins. Liquids and powders appear to be equally effective when applied properly to the grain.

Use Heptachlor on Forage

2. *Approval of the use of four ounces heptachlor per acre on forage crops* against grasshoppers with a waiting period of only seven days before harvesting or grazing. This makes grasshopper control even easier than in the past.

3. *Extending the use of granular insecticides containing DDT to corn borer control.* The research leading to this announcement was done at the Regional Corn Borer Laboratory, Ankeny, Ia.

To be successful, produce results and produce them on time.

Over the past two years, granular DDT has given borer control at least equal to and often better than that obtained with higher dosages of DDT in sprays. Granular DDT rolls down the leaves and is concentrated in the whorl and leaf axils, where young corn borers come in contact with it. Sprays appear to kill borers out on the leaves. Results indicate that smaller residues of DDT remain on corn treated with granular formulations.

Recommend DDT Granules

In 1956, 15-20 pounds of five percent DDT granules per acre will be recommended for corn borer control in the North Central states. Both the insecticide formulations and equipment for applying will be available.

For the past ten years, most states have attempted to work out their pest control recommendations so that a single machine—the low-volume, low-pressure, general-purpose farm sprayer—could be used. In the North Central states, at least, this equipment is used effectively against weeds, soil insects, grasshoppers, orchard and shade tree insects, corn borers, flies, and a multitude of other farm

(*Continued on page* 52)

Tolerances of Major Insecticides

	Parts per million		Parts per million
Aramite	1.0	EPN (phosphate)	3.0
Aldrin	0.1	Heptachlor	0.1
Arsenic	3.5	Lead (arsenate)	1.0 on citrus 7.0 on other fruits
Benzene Hexachloride	5.0		
Chlordane	0.1	Lindane	10.0
Cryolite (fluorine)	7.0	Methoxychlor	14.0
DDD or TDE	7.0	Nicotine	0.0
DDT	7.0	Parathion	1.0
Dinitro compounds (DN-111, etc.)	1.0	Toxaphene	7.0
Dieldrin	0.1	Systox (systemic Phosphate)	0.75

You'll smile too!

when CRAG Glyodin gives you the best apples at lowest cost!

CRAG Trade-Mark

BEST COLOR AND FINISH

Experiment station and grower results *prove* CRAG Glyodin apples have the finest color and finish—apples that get you top market prices.

Rated *first* in 88 tests in 19 leading apple states over 5 years!

COSTS LEAST

Costs only 75¢ per 100 gallons of spray (54¢ in cover sprays) — the lowest costing organic fungicide.

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It's been proved by growers and experiment station tests that trees treated with CRAG Glyodin give greater apple yields than trees treated with other leading fungicides.

USE THE COMPLETE GLYODIN-MERCURY-GLYODIN PROGRAM

EARLY SPRAYS		COVER SPRAYS
GLYODIN for protection	ADD MERCURY when needed for back action	GLYODIN for continued protection

Send in this coupon and get the proof that CRAG Glyodin is the best you can use. You'll receive free a full color booklet on apples. It shows the *proved facts* on cost, yield, finish, scab control, mite control, summer disease control, and many other extra benefits CRAG Glyodin gives.

Cherry Growers... You can also use CRAG Glyodin to control cherry leaf spot!

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Check ones you want—

Send me the new CRAG Glyodin Apple Growers' Booklet F-8954 ☐ Cherry Booklet F-8783 ☐

Name_____

Address_____

County Agent Harold Young, South Dakota, shows how easy it is to push homemade chemical spreader. It covers 36 inches to the round.

Do-It-Yourself

It's handy, easily made, this . . .

Homemade Chemical Spreader

By John S. Arnold
Volga, S. D.

● TWO BICYCLE WHEELS, some sheet iron and angle iron, and a good deal of ingenuity has given Lawrence county, South Dakota weed fighters a sturdy, heavy, chemical spreader.

The unit, according to County Agent Harold Young, has been used to spread an estimated 60,000 pounds of borascu on leafy spurge and other noxious weed-infested patches in the county since about 1949.

It holds up to 100 pounds of chemical. It is light enough for one man to handle easily, and it will cover an 18-inch strip or three feet to a round. Mounted on bicycle wheels, the spreader has an agitator and adjustable feed so that it can be changed to apply any amount desired.

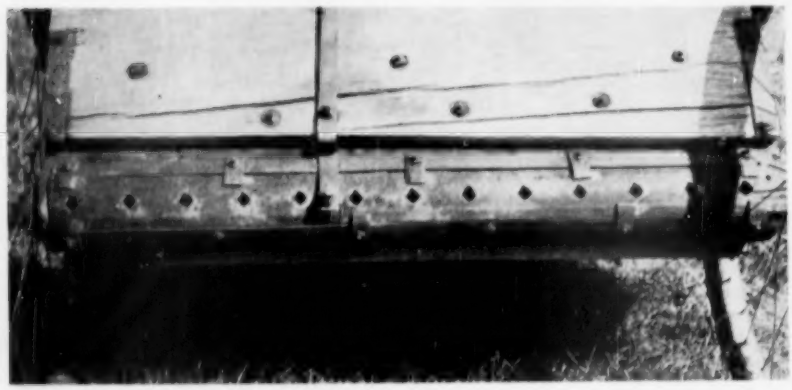
Early in the county weed program (which started in 1948), Young and Monty Russell, county weed supervisor, spread the chemical by hand. It was slow and tedious, and difficult to get uniform coverage. So they came upon the spreader idea. The two, with the help of a county highway mechanic, constructed the unit.

The two bicycle wheels are connected with a half inch shaft welded to the wheel spindles. Two pieces of angle iron are welded to the shaft and serve as an agitator.

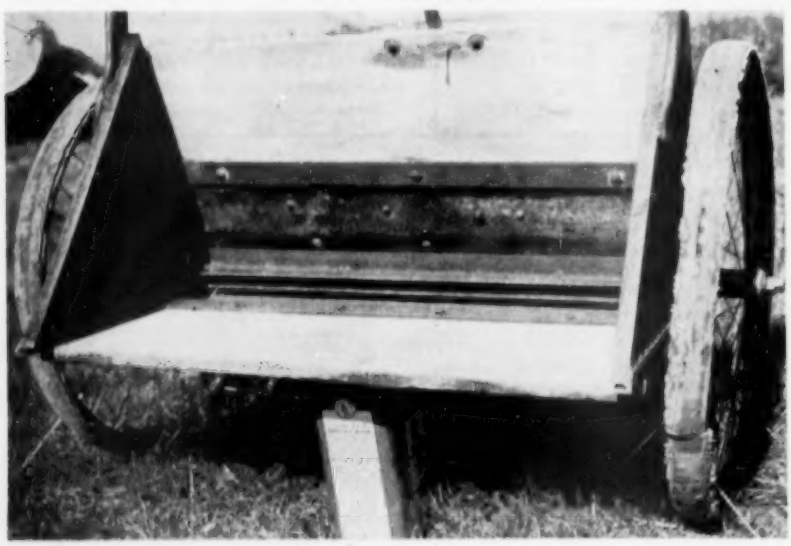
The adjustable feed device consists of two plates of sheet iron containing matching holes in the very bottom of the spreader. One plate is stationary, the other movable by a hand lever for hole-size adjustment.

Bicycle tires were used at first but abandoned later. Solid, heavy hose was then substituted around each rim.

Side pieces are secured to the bottom plates. They are made of inch board. Triangular end pieces are made of sheet iron. Two slender handles are secured to the end pieces and braced for added strength.—*End*



Two pieces of sheet iron, each with the same sized holes, with one movable, allow for adjusting the rate of spread. A hand lever easily makes this adjustment.



Illustrated here is a top view of the spreader showing the two angle iron agitators in the bottom of the hopper.

STA-FRESH* SPURS BOOM IN SILAGE FEEDING

. . . Keeps Grass Silage Fresh, Sweet-Smelling, More Nourishing

CATTLE CLEAN IT UP! Farmers report that their cattle prefer "STA-FRESH" silage over untreated silage. In free choice feeding tests, cows consumed better than three times as much of the more nutritious bisulfite-treated silage.

ENDS "SILAGE STINK!"—"STA-FRESH" proves blessing to farmers and their wives by ending the contaminating, all-pervading odor of untreated grass silage.

EASY TO USE! When you use "STA-FRESH", just cut your crop at the best stage of maturity, regardless of weather, and mix in the STA-FRESH powder at the blower automatically with an easy-to-make applicator.

*Reg. Trade Mark

NEW YORK, N. Y. — Reports from county agents and farmers in all parts of the country indicate rapidly increasing interest in grass silage for feeding dairy cows and other cattle. This has been spurred by the remarkable success of "STA-FRESH" Sodium Bisulfite, the amazing powder that keeps silage green and nutritious for months after ensiling.

Makes A Superior Feed

Backing up research findings which were featured in farm publications for the past two years, these on-the-farm reports show particular enthusiasm about the elimination of obnoxious "silage stink" by use of "STA-FRESH" and about its many advantages in making grass silage a more palatable and nourishing feed.

"STA-FRESH" treated silage was found to remain virtually as green, fresh and sweet-smelling as fresh-chopped grass. Tests showing more total digestible nutrients, with less loss of dry matter and a far higher sugar and carotene content, were supported by the way cattle literally gobbled up the treated silage.

New Importance To Low-Cost "Grass Farming"

Here, farm tested and proved, is the answer to supplying a good, low-cost cattle feed which provides the energy cattle need, the taste that makes them want it, and the vitamin A required to produce rich milk and quality beef. "STA-FRESH" has proved effective in ensiling such forage crops as grass and alfalfa in either upright or trench silos.

Low Cost Cited

The gain in feed value by itself more than offsets the cost of "STA-FRESH", which comes in the form of an inexpensive, easy-to-use powder, packed in 80 pound bags. Only 8 lbs. treats a full ton.

FREE FOLDERS FOR DISTRIBUTION AT YOUR MEETINGS — Folders tell how to use "STA-FRESH" and describe applicators which the farmer can easily make for himself. Let us know how many copies you can use. Write today to GENERAL CHEMICAL DIVISION, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

As an alert ag leader, include in your program a plan to . . .

TEACH Chemical SAFETY to Farmers

By Glenn I. Prickett
Farm Safety Specialist
University of Minnesota

● RECENTLY A TEACHER came into our state office and wanted some materials to help teach safety. One of his students had just been killed in a farm accident, which, he said, had "jarred him loose to the need of teaching safety."

More and more agricultural leaders are including farm safety in their educational programs each year. And there's a good reason, too.

In industry, responsibility for workers' safety is usually placed on a safety supervisor. He provides for safe working conditions and practices. On-the-job training in safety is given and workers are required to participate. Inspections, enforcement, and education protect the workers. But in agriculture, safety is taught to the farmer only on a voluntary educational basis.

Concentrate on Safety

Many phases of farm safety should be taught. Too often however, we have used the "shot gun" method and attempted to hit them all at one time. Let's focus our sights on a growing danger in farming, the handling of farm chemicals. Research has brought an increasing number of new chemicals into farm use. They include fertilizers, herbicides, insecticides, and new farm fuels.

Each year reports like the following come to our attention. "A four year old boy was burned to death and his father and mother were severely burned trying to save him. The fire started when dad was re-fueling the tractor." Other reports tell how farm people have been poisoned with fumigants and insecticides.

Practice What Is Right

What will prevent these accidents? There is no magic formula or panacea. It's showing people how to handle these chemicals safely and then getting them to practice what they know they should do.

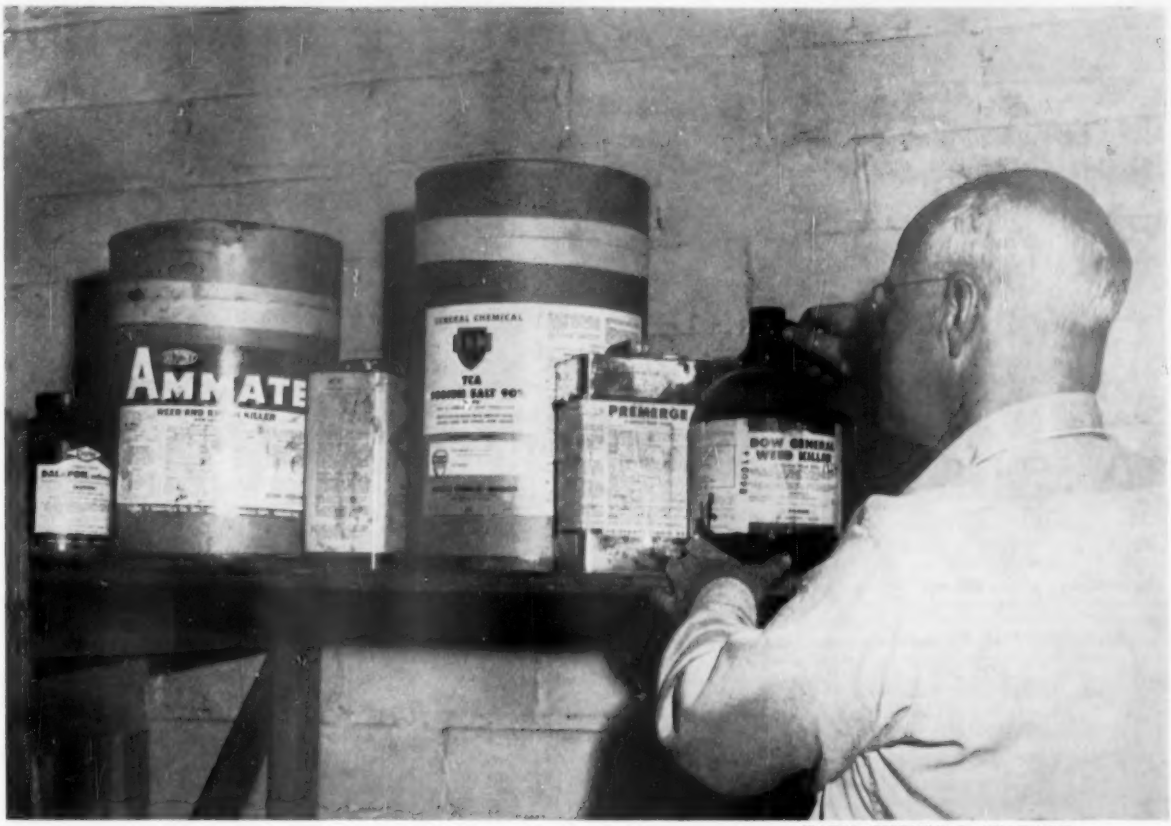
Anhydrous ammonia fertilizer has brought new hazards to farm operators. Some State Departments of Agriculture are setting up safe storage requirements and Industrial Commissions have prescribed safe regulations for workers at the bulk plants. Still there is little regulation at the farm where it is used.

Ammonia is a strong irritant. The gas may cause irritation of the skin and mucuous membranes. It can severely injure the linings of respiratory passages and cause death to humans or animals. The liquid causes severe burns on contact.

In presenting protective measures to a class or 4-H club, a set of slides combined with a flannelgraph would be effective. Each of the measures below could be lettered on a two-inch wide strip of light green or white paper. Medium grade sandpaper pasted on the backs will make it possible to stick them on a flannelboard. A piece of 36x48-inch red or dark green flannel or terry cloth would be good. (Use italicized words on a flannelgraph).

1. *Work above or on windward side*

LIQUID FERTILIZER . . .
Dangerous if improperly handled.



FARM CHEMICAL STORAGE . . .
A set of slides illustrates how to do it.

to permit free ventilation.

2. *Wear goggles* or protective eye shield and respirator.

3. *Wear rubber gloves* on hands and protective clothing for other parts of body.

4. *Carry supply of water* (5 gallons) to wash parts of body in case of accident.

5. *Carry first aid kit* equipped with materials for ammonia burns.

Know What To Do

In case you do have an accident,

1. *Call doctor* at once.

2. *Wash exposed* areas with a deluge of water. Quick action is necessary to prevent serious injury.

3. *Remove patient* from contaminated area. Lay patient on back, remove soaked clothing, and keep him warm.

4. If unconscious, give *artificial respiration* by the arm lift-back pressure method.

Use Local Pictures

Half a dozen locally made color slides will strengthen your presentation. Get pictures of students or 4-H members in the community. Try to get some of these shots:

1. Tractor pulling ammonia spreader. (man on tractor seat).

2. Ammonia blowing away from operator.

3. Close-up of hands in rubber gloves.

4. Close-up of man's face protected with goggles.

5. Same shot of man with respirator.

6. Five gallon water can on tractor.

7. First aid kit attached to tractor.

Some of these slides will be showing action. Remember to set the shutter at 1/50 or 1/100 of a second and open the lens accordingly.

Vapors Are Dangerous

Chemicals used to control insects, diseases, and weeds sometimes cause illness or death. This is usually because a toxic vapor, oil, or dust has been inhaled or absorbed through the skin. A routine of safety habits should be taught to prevent accidents with them.

Because drill will help in this kind of teaching, a set of flash cards would be helpful. The cards could be about 18x26 inches in size and in pastel colors with black lettering. A cartoon covering about one third of the card would help students remember the point made.

Letter-Size Important

In making the letters keep in mind that the minimum height should be about 1/300 the distance to the farthest student. (Words italicized in the following statements could be put on flashcards.)

1. *Read the label*—understand it and follow directions. If antidotes are included on the label, see that they are on hand.

2. *Avoid needless exposure* to sprays, dusts, or vapors of any chemical, even though mild. Wash exposed parts of your skin thoroughly and change to clean clothing after working with any chemical.

3. When mixing a poison insecticide, *protect your eyes.* Do not spill on your skin or clothes. If material is spilled, remove garments and wash parts of body affected. Wash garments thoroughly with soap and water.

4. *Don't exceed recommended amounts* when applying dust or spray. Keep spray or dust off utensils used by man or animals.

5. *Don't spray oil base materials on electric wires,* outlets, or fuse boxes.

6. *Store farm chemicals in a cool, dry place* where children or livestock cannot get to them.

Protection Is Necessary

When working with organic phosphate insecticides such as TEPP or parathion, or with organic mercury fungicides—

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*W—300 U.S. GPM at 66 PSI
*FZP—(New Self-Priming)—150 U.S. GPM at 40 PSI
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NOTE: Above tables show recommended operating performance; do not represent maximum.

*NP—(Self-Priming Portable) 60 U.S. GPM free flow: 15 U.S. GPM at 40 PSI
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*Gasoline-driven. NOTE: All units above FZP come skid or trailer mounted.

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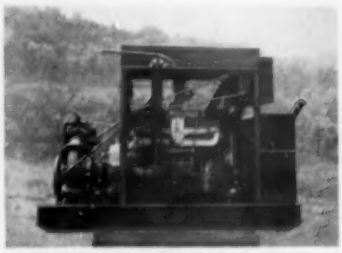

The PIR Pumps: 500 GPM at 100 PSI
600 GPM at 85 PSI
700 GPM at 75 PSI

NOTE: The above table shows recommended operating performance. Does NOT represent maximum performance.

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NEW BOOK—Successful Broiler Growing—shows how to make money growing chickens for meat!

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Order Now - - - $3.50

BETTER FARMING METHODS

Mount Morris, Illinois

1. *Wear close fitting respirator* out doors. *Wear a full face gas mask* indoors.
2. *Wear natural rubber protective clothing and goggles.*
3. *Mount dust or spray equipment on rear of the tractor* and spray when there is no wind.

In teaching a unit on safety with grain fumigants, any of the techniques above might be used.

These Points Important

Here are a few special reminders:

1. *Wear a gas mask* equipped with cannister designed for particular fumigant. Replace cannister after 30 minutes of continuous use.
2. If liquid fumigant is spilled on clothing, *remove it at once* to prevent blistering of the skin.
3. *Work from outside the bin* using power sprayer or bucket pump to prevent needless exposure to fumigant.

Color slides of the correct type of gas mask and a man spraying a bin from the outside would be effective. An actual gas mask to show the class would be even better.

Motion Pictures Helpful

When teaching safety with herbicides, here are two additional facts to present:

1. Handle phenylmercuric acetate and dinitro compounds same as the toxic organic insecticides and fungicides described earlier.
2. Handle sodium chlorate very carefully because of the fire hazard. Clothing which has dried after being wet with sodium chlorate is highly flamable and explosive. Remove and keep it away from heat or electrical circuits.

A 16mm sound motion picture entitled "Farm Petroleum Safety" would be excellent in teaching safety with farm fuels. This film was sponsored by the National Petroleum Institute and is available free of charge at most

agricultural extension film libraries. It shows how to prevent the common accidents caused by incorrect handling of fuels.

Remember, when taking pictures for a safety exhibit or slides for a class discussion, it is more effective to emphasize the right thing to do. If you must show a mistake someone made, follow it with the way it should have been done.

One more suggestion—a field trip to see the above safety practices demonstrated would be a very effective follow-up after a class discussion.

Increased use of farm chemicals will aid in crop production but will also lead to an increasing number of accidents, unless farmers are taught safe methods of using them. It is important to protect the crops from insects and disease. It is more important to protect the farmers who use them.

Teachers and extension workers *can* teach vo ag classes, vet ag classes, young farmers' groups, 4-H clubs, and farm organizations the way to handle farm chemicals safely.—*End*

★

Ohio Tests Corn Drying

For the past two years, workers at the Ohio Agricultural Experiment Station have tried to dry field corn quicker through the use of chemicals.

Herbicides applied to corn with 39 percent moisture had little effect in reducing the moisture content of the ear over that of field corn left to dry naturally. Their tests indicate that there is little justification in using chemicals to try and dry field corn faster.

★

With a twist of the wrist you can shoot a movie scene with a standard lens, reach out for a wide-angle view, or pinpoint it telephoto fashion. This can be done without changing lens or focus. Pictured is the new Brownie Turret movie camera, Eastman Kodak Company, Rochester 4, N. Y., the manufacturer. You can receive more detailed information concerning this camera from Eastman Company.

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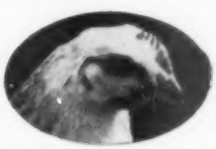

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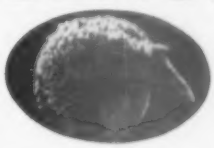
EFFECTIVENESS OF TREATMENT . . .



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Philadelphia 1, Pa.

What's New in Rat and Mouse Control

Mice are Harmful–Kill Them!

By E. H. Fisher
University of Wisconsin

● THE NEWEST THING in the field of rat and mouse control is Federal Food and Drug Administration evidence that food grain, especially wheat, needs more protection from rats and mice.

Inspections showing excessive rodent filth have resulted in about 65 to 95 cents per bushel downgrading of the grain—many carloads have been condemned, causing heavy losses to farmers and others. Rat and mouse filth in this food grain was shown to be several times more important than insect infestation.

Intensify Local Campaigns

Looking toward July 1, 1956, we now must begin a more intensive, continuous fight against rodent filth in food grain. We'll have to do a better job or face the possibility of having much greater quantities of grain condemned, beginning in mid-1956.

Why? It's because the Federal Food and Drug tolerance for rodent filth in wheat will then be only half the present amount. And keep in mind, their figures show that they would have condemned nearly three times as many cars of wheat in 1955 if the forthcoming tolerance had been in effect. So now is the time to start protecting the grain since purchases of grain may be made with the lower rodent-filth tolerance in mind.

Protect Stored Grain

Everyone concerned with the problem of protecting stored grain from rats and mice, everybody from the farmer to the food processor, can get information on how to cope with this problem. Youth groups like 4-H, FFA, and NFA will be conducting rat and mouse control programs—their demonstrations and publicity will be valuable services.

To sum it up, there's just no reason why anyone should complain if he suffers losses due to a lack of rodent control in stored food grain.

Rats and mice are not only a problem with food grain, but also cause heavy losses of feed grain, poultry, and others.

There are plenty of new opportunities for youth groups to conduct successful rat and mouse programs. For instance, the Wisconsin Alumni Research Foundation is sponsoring a rat and mouse control program with incentives for both individuals and their organizations to earn money, awards, and recognition. The Foundation has a helpful kit of suggestions for planning and carrying out the program. It offers opportunities for the youths to be of service to the public and learn more about solving a farm problem, as well as earn valuable awards and recognition.

Use Safe Rodenticides

Warfarin, the pioneer anticoagulant, remains the king of rat and mouse killers on the farm. There is no special evidence which indicates a superiority of other rodenticides over warfarin for general farm use, and there are definite inferiorities among these lesser-used ones.

Some new information along this line can be gathered from a report by personnel of the Chemical Corps Medical Laboratories of the Army Chemical Center. They compared warfarin with some other anticoagulant rat killers, technically called indandiones, and concluded that "this finding suggests that the possibility of fatal accident with rodenticidal baits would be increased if indandiones were used."

These scientists further said: "One of the advantages of warfarin as a rodenticide lies in its low single-dose toxicity compared with its relatively high multiple-dose toxicity." In other words, here is warfarin's safety factor.

Keep After Mice

A recent report by Minnesota specialists showed mice to be of very great importance with relation to contaminating stored grain in some North Central States. They said, "As far as grain contamination is concerned, mouse control needs to be rigorously added to the rat control effort which previously had been the major concern in rodent control. Mice have been tolerated at the expense of grain sanitation."

Experience has shown that bait placements must be made much closer together for mice than rats. The U.S. Fish and Wildlife Service has indicated a greater efficiency of mouse control with warfarin by adding five percent confectioner's sugar and five percent vegetable oil to the cereal-type bait. And my personal experience is that water-soluble warfarin was an excellent mouse killer where large quantities of agricultural seeds were stored in large warehouses.

Just a few rules for using an anticoagulant rodenticide like warfarin:

1. Make enough bait placements so that rats or mice cannot avoid them.
2. Keep a continuous supply of bait at all active placements.
3. Use protected bait boxes. These may be of the self-feeder type.
4. Have water on the side as an extra attractant with the cereal-type bait. Or additionally use a water-soluble form of the rodenticide.—*End*

★

With his hand on the scale is George Hamilton, Morgan county agricultural agent, Colorado, who helped organize a Corn Club committee in his county. The farmer with the highest yield totalled 167 bushels of shelled corn to the acre. Yields were adjusted to a 15 and one-half percent moisture level. County Agent Hamilton reports great interest already in next year's contest by farmers of his county.

★

Insecticides

(*Continued from page* 44)

pests. This results in efficient use of equipment, reducing the cost of application for each pest controlled.

Here Are Major Questions

To me the major questions are: Will granular formulations become available for and effective against as wide a range of pests as liquid formulations? Or will granular pesticides be used primarily by larger, specialized farmers who can afford to buy a machine with limited usefulness? Will the granular insecticides increase the opportunities for custom application? These questions will be answered in time.

I think that the widespread use of low-volume sprayers, the universal availability of good pesticides, and the rapid increase of pesticide manufacturers, formulations, and dealers is one of the major advances of the past decade.

4. *Encouraging reports of success-*

ful fly control with malathion, diazinon, and Dipterex. These phosphate insecticides were used as residual sprays and baits throughout the country with good results. Flies were not wiped out, as in the early years with DDT, but fly numbers could be kept down by regular applications and good sanitation.

Diazinon has recently been approved as bait or residual spray in all livestock shelters except those housing poultry.

5. *A mysterious something called the "fly factor."* Work at the USDA Entomology Research Laboratory in Orlando and at Johns Hopkins University following observations at the Army Chemical Center, has shown that flies land most readily on surfaces visited previously by other flies. Flies feed most eagerly on baits where other flies have left this "fly factor."

Research is continuing to determine the chemical composition of the "fly factor." If successful, we may use flies to lure other flies to their death.

Possible Outbreaks in 1956

No one can predict insect outbreaks accurately. We must prepare for the worst and hope for the best. Weather conditions during the next six months will largely determine our losses in 1956. Below are possibilities, however, since their overwintering populations are high.

The quickest way to get many things done is to do them one at a time.

European corn borer: Not quite as abundant as in the fall of 1954, still spreading to new areas. A normal season will cause trouble.

Grasshoppers: Egg populations are high in most Corn Belt and Great Plains states. A dry, warm spring will favor an outbreak.

Chinch bugs: Adults are going into hibernation in large numbers. A cold, open winter will kill many of these and a wet spring will stop any chance of outbreak. A mild winter and a dry spring will favor an outbreak.

Fortunately, most of our insect pests can be controlled by chemicals. Since we can't predict insect outbreaks with certainty, insecticide manufacturers and formulators can't prepare during the winter for spring and summer demand.

If farmers will anticipate their potential needs and purchase a portion of their estimated insecticides during the slack season, everyone will have an easier time. This is one of the jobs agricultural leaders can work on this winter.—*End*

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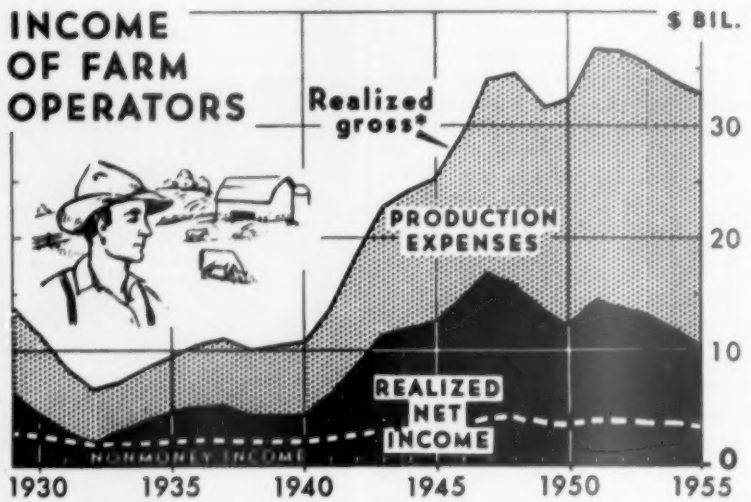
Quick summary for ag leaders

Farm Outlook for '56

By Edward Karpoff
*U. S. Department of Agriculture**



PRICES IN 1956 . . . steady for livestock and livestock products, but lower for crops.

● PRICES OF FARM PRODUCTS in 1956 may average slightly below 1955, but perhaps close to current levels. This was the thumb-nail summary given to state extension specialists attending the annual Agricultural Outlook Conference in Washington on November 28-December 1.

The conferees also were told that livestock and livestock product prices are expected to average close to 1955 levels, in view of prospects for a high level of consumer demand in 1956. But crop prices probably will average lower, reflecting big supplies.

Some reductions in price-support levels could occur for rice, cotton, and corn, under provisions of present legislation. A lower price support for 1956-crop wheat has already been announced.

A further decline in farmer's income is in prospect for 1956. While livestock receipts may total as large as in 1955, crop receipts will be held down by further acreage restrictions for cotton and tobacco, by per-acre-yields probably lower than the very high yields of 1955, and by possible reductions in some support levels.

Production Costs to be Lower

Farmers' production expenses may be a little lower in the coming year. Feed costs will be less, reflecting the lower level of grain prices prevailing in recent months. Interest and tax payments on farm property will be larger. Farm wage rates and prices for many industrial products purchased by farmers are increasing.

These economic factors underlying the agricultural situation indicate some further lowering of returns from agriculture in 1956, in contrast to increasing incomes in the non-agricultural economy. This appraisal, of course, is without allowance for changes which might result from possible additional Government programs that may be undertaken during the year.

Considered on a per-person or per-farm basis, the declines since 1951 in net agricultural income have been much smaller percentage-wise than in total. This is because of the average two and one-half percent per year decline between 1950 and 1954 in the number of farm people.

While the farm population has been declining, the total population has been increasing, and expenditures for food at retail have been at a high level. Urban consumers spend about one-fourth of their incomes for food. But an increasing proportion of their food expenditures has been for processing and marketing services in connection with the food supply, while the farm value of a typical market basket of the food consumed has not risen. Nor has total food consumption per person risen sharply.

Outstanding aspects of the agricultural outlook affecting specific commodity groups are as follows:

Livestock and Meat

Meat supplies in 1956 will support a near-record consumption per person, almost up to the 1955 level of 161 pounds per capita. Prices of cattle may rise slightly as the cattle cycle progresses to a new phase. Hog prices in the first half of 1956 will be below corresponding 1955 prices, but later in the year should be about the same as in late 1955 if farmers do not meanwhile appreciably expand hog output.

Milk production in 1956 is likely to be significantly greater than the 124.5 billion pounds of 1955. Consumption will increase with population growth, but a part of the total supply will again be left for Government purchase at support prices. Dairymen's total production expenses are likely to decline on account of lower feed prices.

Poultry and Eggs

Poultry and egg production is likely to be at record or near-record levels, and lower prices than those prevailing during most of 1955 are in prospect. Lower feed costs, and steady gains in production efficiency, are factors stimulating production in poultry enterprises.

Lower Feed Prices

The record-large feed supply is a factor stimulating livestock output. Regionally, grain and hay supplies are well distributed this year, and a substantial carryover at the end of the year is in prospect after meeting all foreseeable requirements. Prices will average lower than in 1954-55.

Rice supplies for 1955-56 are the largest in history. Exports up to the peak level of 1952-53 would be neces-

**These statements of the author are not necessarily the official views of the Agricultural Marketing Service.*

sary in order to avert a further increase in the August 1956 carryover.

With consumer incomes high and expected to increase further, domestic demand for fruit in 1956 is likely to be as strong as in 1955. Prospects for exports of fruit in 1956 seem better than exports in the past year. Total production of deciduous fruits and tree nuts in 1956 probably will be a little larger than in 1955. Citrus production is expected to continue to trend upward.

Consumer demand of vegetables also will be favorable. If supplies are at the 1955 level, and the seasonal pattern of marketing is not distorted by abnormal weather, prices should repeat the relatively favorable 1955 level for most items. With larger supplies than in other recent years, 1955 prices of potatoes and sweet potatoes were an exception. Available intentions reports regarding winter potato acreage in Florida and Texas indicate a 14 percent increase in those states.

Expect More Cotton

The cotton situation for the 1955-56 marketing year is one of very large supply and increasing stocks. The 1955 crop is larger than probable disappearance and the carryover at the end of the 1955-56 season probably will be larger than the previous record of 13 million bales in 1939. The carryover, which totaled 11.1 million bales on August 1, 1955, has increased each year since the post-World War II low of 2.3 million bales in 1951.

Wool in '56

Prospects are for a slightly larger world supply of wool during the 1955-56 season. Production is expected to be a little larger, and stock is likely to be up slightly from a year ago. Increased capacity for producing synthetic fibres is also in prospect.

Plenty of Tobacco

Domestic use of the two principal cigarette tobaccos—flue-cured and burley—is expected to be larger in 1955-56 than in 1954-55. Cigarette output in the United States may reach 415 billion this year—about three percent above last year, which was nearly eight percent below the 1952 peak.

On July 1, the Department of Agriculture announced a 12 percent cut in 1956 allotments. Since July, the huge size of the current crop has become evident, and leaders from the flue-cured area have indicated they believe a further cut is needed in next year's allotment. This would require legislative action by the Congress.—*End*

Working with farm youth is high on the list of activities of the Spencer Agronomy Team. Here Chief Agronomist Proctor Gull explains the Spencer "Efficient Corn Growing Program."

Spencer Agronomists Are There!

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Teacher's Farm Shop

How to Get Adequate Supplies for Teaching Farm Shop

By T. J. Wakeman

Teacher Trainer in Farm Mechanics
Agricultural Engineering Department
Virginia Polytechnic Institute

● THE LACK OF teaching supplies for farm mechanics teaching programs is one of the greatest problems of the vo-ag teacher, yet seldom can we blame anybody but ourselves for this deplorable situation.

Adequate teaching material is as essential to effective teaching of farm mechanics as fuel is to your auto engine. The use of cheap engine fuel results in poor engine efficiency; poor teaching material usually results in poor teaching results. When there is no engine fuel to use, we know the engine will not function. Likewise, when there is no teaching material, there is no desirable learning.

If we keep our engine fuel in a five gallon can in the trunk of our auto, it cannot get to the engine. If we have our teaching supplies locked up and the students cannot use them, the results are also zero.

While thinking of the organization of our supplies, suppose we mix gasoline, wheel bearing grease, and antifreeze together. What good could be done with it? What is the difference in the practice some of us have of dumping nuts, screws, bolts, nails, pumice stone, and other similar material in the same container?

Maybe You'll Get Ulcers

Trying to teach farm mechanics without adequate supplies, in a well organized way, usually results in "a lot of nothing," except for poor interest, disciplinary troubles, and ulcers for the teacher, says Dave Archer, vo-ag teacher, Ozark, Mo.

Practically every teacher and administrator agree that it is the duty of the teacher to have available nearly all of the materials at all times needed by the students in farm shops. Materials for extremely large projects and specialized items, such as machinery parts, are exceptions.

The individuals mentioned above also agree that it is poor business and highly undesirable for students to chase over to the hardware store all during classes for supplies. More undesirable is the practice of sending students to nearby towns for supplies in the vo-ag teacher's auto.

Here's What You Can Do

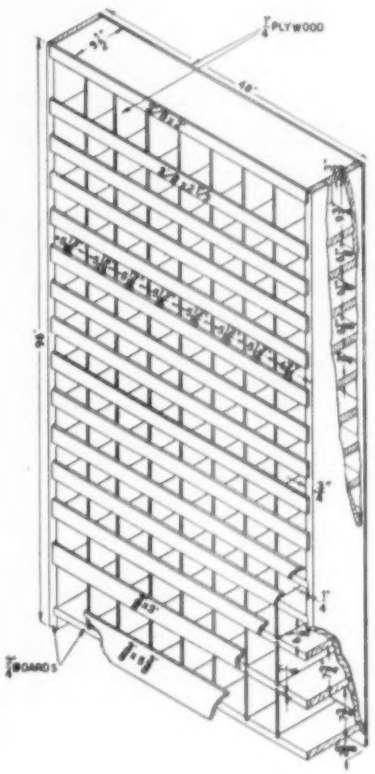
What can we do about the problem of supplies?

1. Agree among ourselves how we want to finance our shop supplies. Here are some of the most used methods:

▸ By use of a *revolving fund* where the school administrators set up a fund, say $800, and the teacher buys the supplies, sells them to the pupils and buys more. The difficulty of this method is that it does not allow for materials used for educational purposes that are consumed like that used for practice and demonstration jobs. It also calls for a lot of bookkeeping.

▸ By use of a *discretionary fund* where the teacher is given, say $800, for supplies the first year and enough each year thereafter to maintain the $800. Here the cost of all materials for practice jobs and demonstrating material is paid from this fund in addition to maintaining the supplies.

▸ By a *flat sum* per pupil. This method works all right for large classes, provided the amount is large enough. Eight dollars per pupil for 40 pupils may be sufficient, but $8 per pupil



Supply Cabinet
(For Tool Room)

NOTES ON MAKING CABINET . . . 1. For tool rooms that have a wall eight feet long, the supply cabinet should be constructed eight feet instead of four feet wide. Keeping the shelves the same width and height as shown in this drawing.

2. If space available is not eight feet wide, construct supply cabinet to fit space available, maintaining the same width and height of shelves as shown in this drawing.

3. Apply two coats of shellac to cabinet.

4. Use one and five-sixteenths by two and three-fourths inch card holders to designate kind and size of supplies in each pigeon hole.

Tool Fitting

Materials	Amount	Kind	Size	Cost
Cutters	4 units	Huntington	0	$ .36
Emery wheels	2	60 grit	1″ x 6″ x 5/8 Bore	3.70
Sheet iron	4 sq. ft.	Galvanized	20 Gauge	.60
Bevel sickle	1	70 grit	5/8 Bore	3.25
Files	12	Extra slim handsaw	6″	2.70
Files	4	Mill bastard	10″	1.68
Files	4	Mill bastard	12″	2.24
Files	2	Auger bit	7	.64
Whet stone	1	Combination	1 x 2 x 8	1.68
Pumice stone lump	2#	Lump		.40

for 20 pupils would not suffice. Why? Much demonstrative material like putty, paint brush cleaner, etc., can be used over and over for a short period of time, yet the initial cost is the same whether you use it to demonstrate to six students or 60 students.

Whether these or other methods are used, an authentic set of records and receipts should be kept. These records should be available to anyone at all times.

2. Determine what we need by the formal program to be implemented the following year. Here is a sample of the toolfitting jobs and materials used in the Blacksburg high school vo-ag department by 16 first-year students: Sharpen an axe, a butcher knife, cold chisel, a mower sickle, reshape a screw driver, and sharpen a handsaw as determined by the farm survey.

Add Cost to Table

To the table, add the cost of the itemized material needed in cold metal, woodwork, welding and farm masonry or any other types of work used during the coming year. Now add the materials for all the other groups you are teaching farm shop.

In the above group the school may pay for all the materials because it is for practice even if they are sharpening their own tools. In the case of making projects like a trailer or concrete fence posts the students would pay for this material if it is to be used at home.

3. Submit to your school principal, or appropriate administrator, your list of supplies for all your groups. After it is approved, purchase the supplies and store them in an organized fashion.

4. Require of each student a bill of materials of all jobs and projects he performs. Have an understanding with him as to what he pays for and what the school pays. The bill of material will give him practically the same educational experiences as he would gain by getting his material from a hardware store. Using this method will eliminate excessive traveling and wandering about by the student. More time will be left for learning.

5. Provide adequate accounting for all the money you spend by keeping receipted bills. Give a receipt for all money received and keep a copy for your records. This is an excellent opportunity for the FFA treasurer to function under the teacher's supervision.

6. Keep a *need* list. This will help to maintain supplies and add the new items to the list. This procedure is an excellent teaching device to add efficiency to other farming efforts.

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SOUTH BEND 1906 50th ANNIVERSARY 1956

SOUTH BEND LATHE

SOUTH BEND 22, INDIANA

This position of lever unlocks gear cover (A), headstock cover (B), and disengages motor drive (C) even if electric power is left on. Access is possible to gears (at A) or headstock belt drive (at B) only when these parts are not moving.

With lever in this position, the gear cover (A), and headstock cover (B) are locked in their closed positions, and the motor drive (C) is engaged.

For What It's Worth

By HERBERT L. SCHALLER, Editor

What Makes a Good Convention Program?

Since I recently attended the National Vocational Agricultural Teachers' convention in Atlantic City, let's take another brief look at convention programs.

This vo-ag teacher group is young. They date back only a few years. Yet in those few years, *they have come a long way toward welding and solidifying a strong national organization—one that is a credit to them as individuals and to their profession as a whole.*

Their convention attendance is not too high. This year, roughly 2 percent of their paid membership attended. This compares to 20-25 percent attendance on a paid membership basis of several other organizations in this field.

Now, the success of a group or organization certainly is not measured entirely by the number of members who attend a national convention. Being teachers in our public schools with specific responsibilities, it is difficult for many of them to take school time to attend their NVATA convention.

Yet, every group, and leaders within the group, like to pack the assembly halls at their conventions with their members.

What attracts people to spend their own time and money to attend a national convention? Say what you will, it is still a good convention program.

The leaders of NVATA are no exception. They would like to see more members attend. One of their final pleas to the group assembled in Atlantic City was to urge all members to come and bring others to their 1957 convention.

For in 1957 they are to get their wish. They will have a summer meeting in Philadelphia—something they have been working on for a long time. Since they meet with their parent organization, the American Vocational Association, they must prove their point that a summer meeting will attract more teachers, or they will probably revert to winter meetings again.

So, to the NVATA, attendance at their convention becomes a necessity to achieve what they have been working for—and to hold it—a summer meeting time.

With this as a problem and a concern of the NVATA, ask yourself this question: Why do I go to a convention? What do I expect or want from a convention program?

Everyone's answer might be different. But, most decisions rest primarily on the convention program, particularly if you are not a delegate with, perhaps, part or all of your expenses paid.

A good convention program is still the primary motivating power that induces people to attend any convention of their own free will and on their own money.

What constitutes a good program? Reasons may vary, but on one point many will agree. It is not all business.

At the recent NVATA convention, approximately 11 hours were spent in general convention sessions. Of these 11 hours, all were devoted to business.

They had reports galore. There were reports from each vice president, each region, and from many of their committees. In some cases, they were given in preliminary, progress, and final form.

No association can expect to attract its membership to a convention at the national level if all they have to offer is a series of reports given by officers and members of their executive board.

Any good convention program has at least four major parts.

1. *Business.* It is necessary, but it is held to a minimum and arranged to give an accurate and concise picture of the organization at the national level.

2. *Instruction.* A part of any good program deals with problems and solutions of the profession, given by men within the association who have something to offer, or men in allied fields who have handled similar problems.

3. *Inspiration.* Men work all year in their own backyards, so to speak. They don't get to a national convention very often. And when they do, they are human enough to want to shake momentarily the dust of their own surroundings, and hear inspiration and a pat on the back from someone else.

4. *Fellowship.* The heart of any convention is here. And not all of it is held after hours in hotel rooms and lobbies. The association plans part of it—from fun night, to the president's roundtable.

No ag leader would get his farm people to attend meetings where the program consisted of business and reports. And teachers are no different.

H L Schaller

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Once aldrin is applied, it goes to work quickly. Aldrin controls rootworms, wireworms, seed corn maggots, cutworms, ants, and other major soil insects. In fact, when these pests even touch, taste, or smell aldrin, they're finished for good. And aldrin is easy and economical to use as granules, spray, or dust; or mixed with starter fertilizer. Mere ounces per acre give dependable control.
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Variety of Bird	Days to 10% Production	Ave. No. Eggs Produced Hen-Housed Basis	Adult Mortality
DEKALB	**162**	**246**	**4%**
LEGHORN	166	240	6%
DEKALB	**157**	**233**	**6%**
LEGHORN	178	231	8%
LEGHORN	176	221	18%
LEGHORN	171	214	20%

DEKALB ALSO HAD HIGHEST HEN-DAY BASIS — averaging 253 eggs per bird (DEKALB 111). This record speaks for itself. Get your share of high poultry profits this year. Raise DeKalb — the NEW, Modern Chix — the NEW way to NEW CHIX profits.

NEW STATE PRODUCTION RECORD—290 EGGS

The poultry flock owned by the Ernest Schnetzlers of Salisbury, Missouri has set a new record of egg production in the State of Missouri with an all-time high of 290 eggs per hen for the year ending August 31. The Schnetzlers cooperated with the University of Missouri Extension Poultry Department with their record keeping program. 185 hens were housed, 7 were lost during this period (3 from mouldy feed).

CALIFORNIA RANDOM SAMPLE TESTS . . .

Averaging the returns over feed cost for the 5th and 6th California Random Sample Tests—

DEKALB $9.18 Average return
All others $6.94 " "

DeKalb returned $2.24 more per bird in the two tests than the average.

GRAND CHAMPION NEPPCO—Egg-to-Chick

DeKalb Chix entered by Metz Hatchery (a DeKalb Associate Hatchery) won top honors in the 70 entries in the recent NEPPCO Egg-To-Chick Contest. Scoring was based on egg quality, hatchability and chick quality.

6th CENTRAL NEW YORK RANDOM SAMPLE TEST . . .

In the 6th Central New York Random Sample Test, the DeKalb entry has had no mortality during the first 195 days of the test. The average mortality of all other entries was above 4 deaths for the period.

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